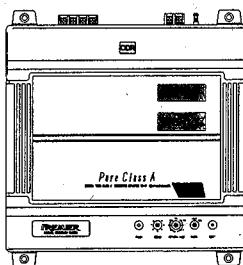


PIONEER®
The Art of Entertainment

• RS-A1/UC



ORDER NO.
CRT1540

Service Manual

DIGITAL "PURE CLASS A" INTEGRATED AMPLIFIER
OPTICAL DIGITAL REFERENCE SYSTEM

RS-A1 UC,EW

DIGITAL "CLASS A" INTEGRATED AMPLIFIER
OPTICAL DIGITAL REFERENCE SYSTEM

RS-A2 UC,EW

CONTENTS

1. DISASSEMBLY	2	11. CONNECTION DIAGRAM(3).....	39
2. ADJUSTMENT.....	4	12. SCHEMATIC CIRCUIT DIAGRAM(4).....	41
3. BLOCK DIAGRAM	7	13. CONNECTION DIAGRAM(4).....	43
4. CONNECTION DIAGRAM(1).....	19	14. EXPLODED VIEW	45
5. SCHEMATIC CIRCUIT DIAGRAM(1).....	21	15. PACKING METHOD	49
6. SCHEMATIC CIRCUIT DIAGRAM(2) (RS-A1).....	24	16. ELECTRICAL PARTS LIST	50
7. CONNECTION DIAGRAM(2) (RS-A1).....	27	17. CIRCUIT DESCRIPTION.....	54
8. SCHEMATIC CIRCUIT DIAGRAM(2) (RS-A2).....	30	18. OPERATIONS AND CONNECTION	56
9. CONNECTION DIAGRAM(2) (RS-A2)	33	19. SPECIFICATIONS.....	64
10. SCHEMATIC CIRCUIT DIAGRAM(3).....	36		

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SAFETY INFORMATION (UC MODEL)

CAUTION

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual. Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely; you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING

Lead in solder used in this product is listed by the California Health and Welfare agency as a known reproductive toxicant which may cause birth defects or other reproductive harm (California Health & Safety Code, Section 25249.5). When servicing or handling circuit boards and other components which contain lead in solder, avoid unprotected skin contact with the solder. Also, when soldering do not inhale any smoke or fumes produced.

1. DISASSEMBLY

● Case

1.Unfasten four screws and then remove the case.

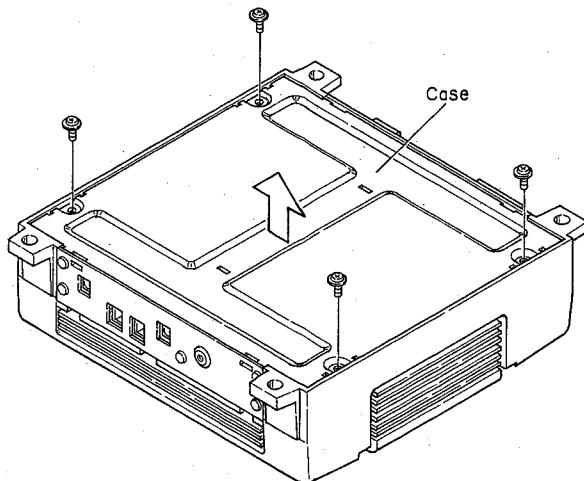


Fig.1

● Panel

1.Unfasten ten screws A and then remove the two Panels.

● Amp Assy

- 1.Unfasten three screws B.
- 2.Unfasten eight screws C.
- 3.Remove the amp assy.

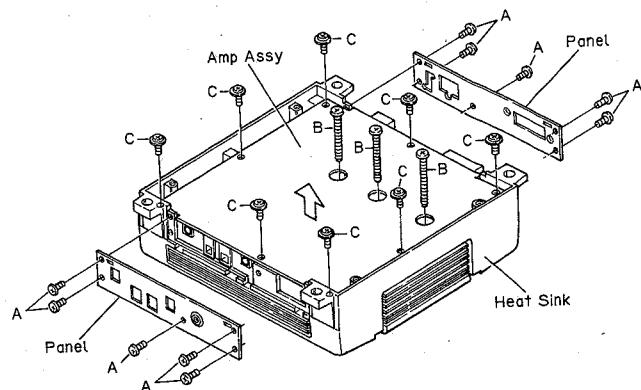


Fig.2

● Fan Motor

1. Remove the connector.
2. Unfasten two screws and then remove the fan motor.

● Case

1. Remove the three knobs.
2. Remove the case.

● VOL Unit

1. Unbend the claws at two locations until straight.
2. Remove the VOL unit.

● Transistor, Diode

When you exchange the transistor of Q541.

1. Unfasten six screws A.
2. Remove the two solders.
3. Unbend the claws at two locations until straight.
4. Remove the holder A.
5. Remove the transistor of Q541.

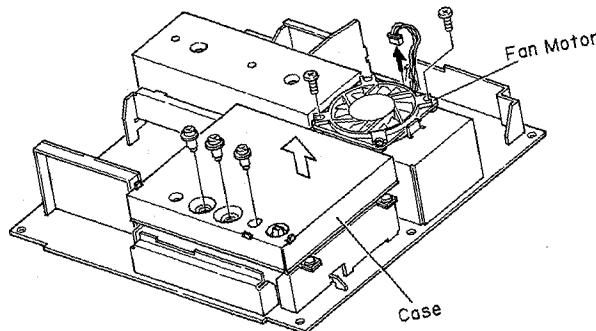


Fig.3

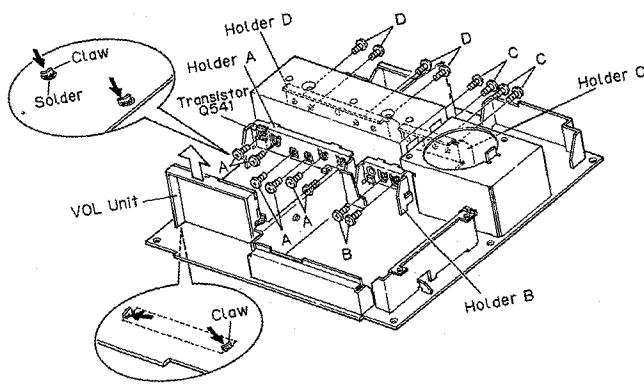


Fig.5

● DSP P.C. Board

1. Remove the two connectors.
2. Unfasten four screws and then remove the DSP P.C. Board.

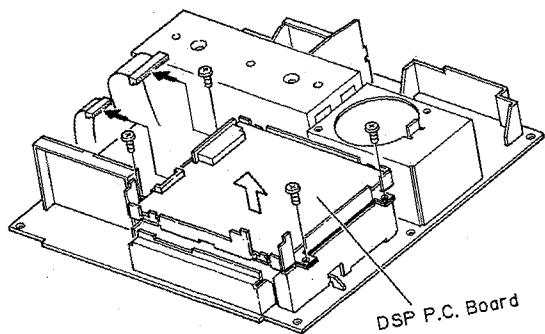


Fig.4

2. ADJUSTMENT

2.1 POWER SUPPLY VOLTAGE ADJUSTMENT

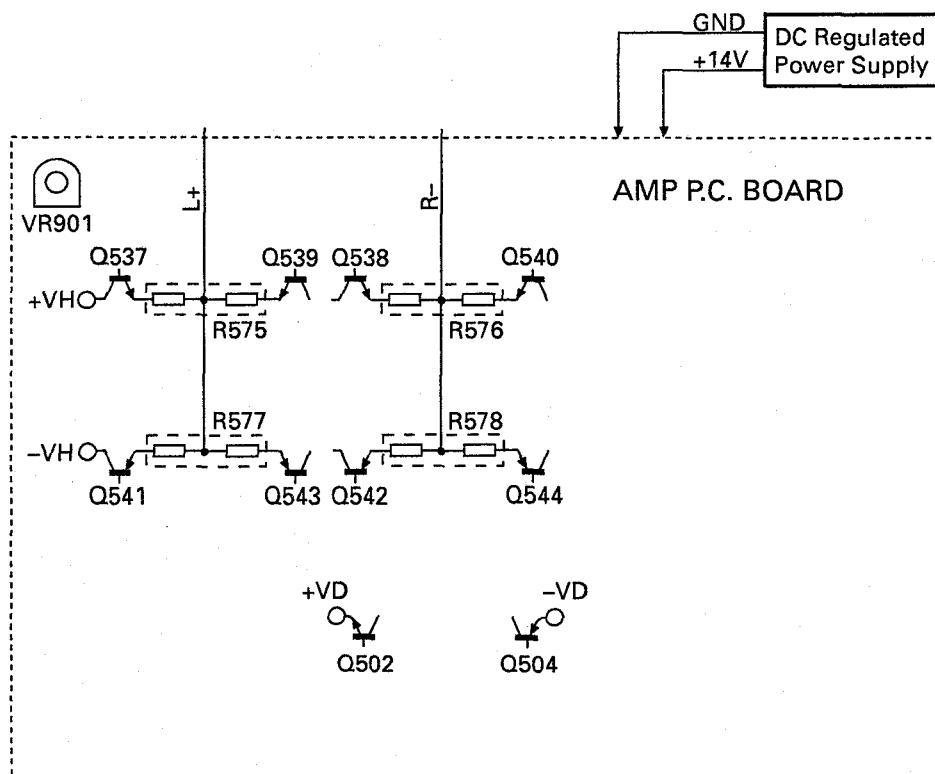


Fig.6

Note:

1. PWM control switch should be "L" (at VOL step 15 and above).

●RS-A1X

	Adjusting Point	Adjustment Method
DC/DC converter output voltage (VH)	VR901 VR901	DC V meter (+VH-GND) : +14±0.2V DC V meter (-VH-GND) : -14±0.2V
Supply voltage of drive stage (VD)	VR901 VR901	DC V meter (+VD-GND) : +15V more than DC V meter (-VD-GND) : -15V less than

●RS-A2X

	Adjusting Point	Adjustment Method
DC/DC converter output voltage (VH)	VR901 VR901	DC V meter (+VH-GND) : +24±0.2V DC V meter (-VH-GND) : -24±0.2V
Supply voltage of drive stage (VD)	VR901 VR901	DC V meter (+VD-GND) : +25V more than DC V meter (-VD-GND) : -25V less than

3. BLOCK DIAGRAM

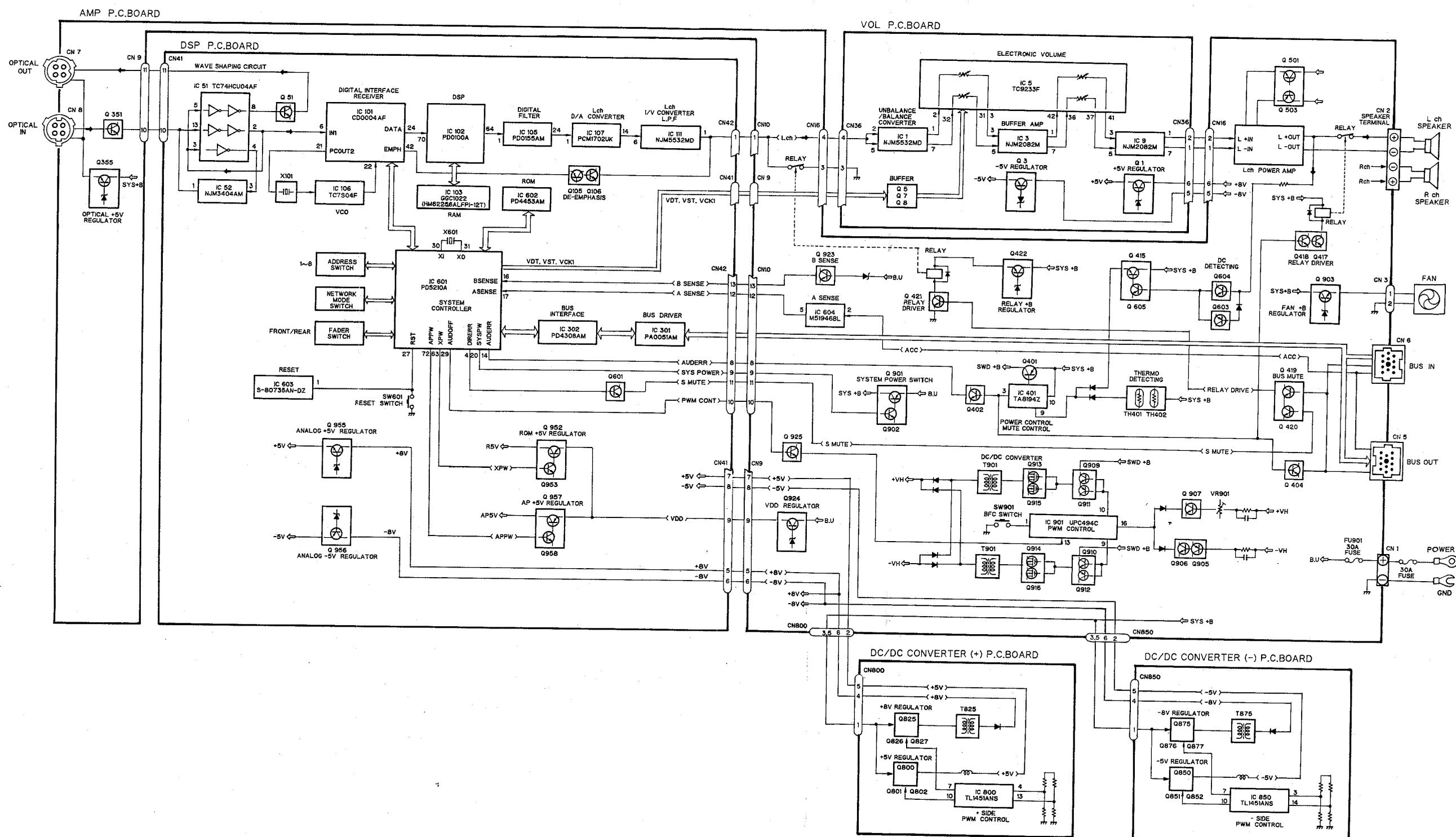
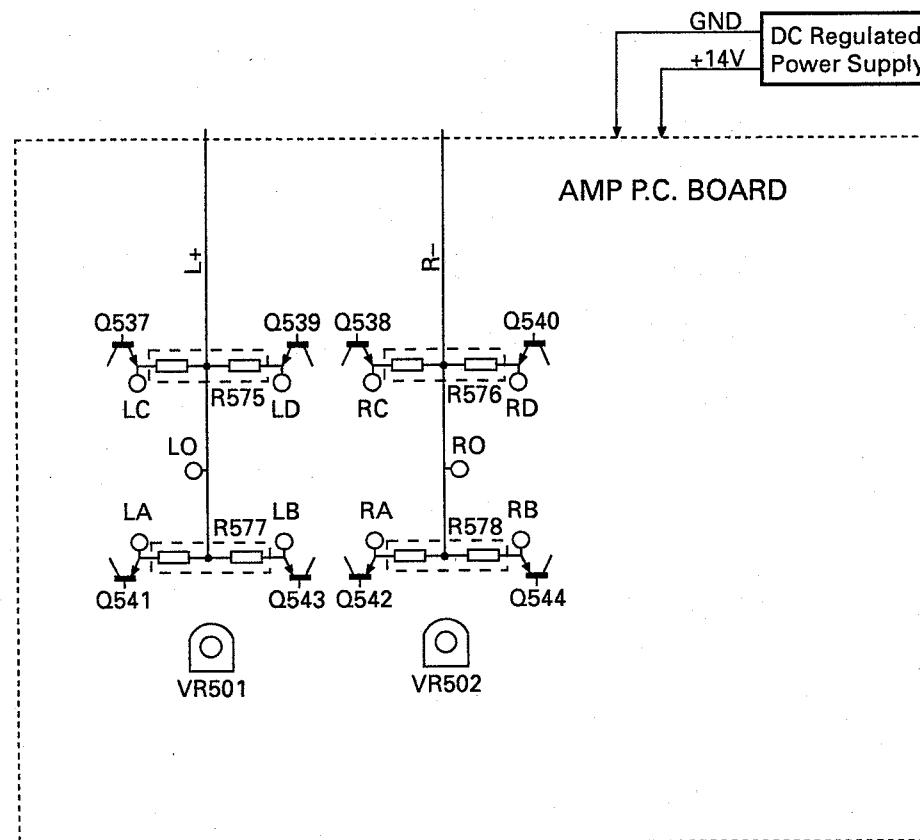


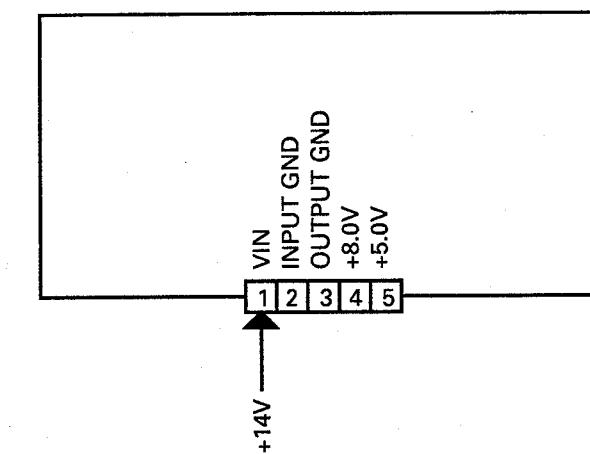
Fig.9

2.2 IDLE CURRENT ADJUSTMENT



2.3 DC/DC CONVERTER EXAMINATION

DC/DC CONVERTER (+) P.C.BOARD



DC/DC CONVERTER (-) P.C.BOARD

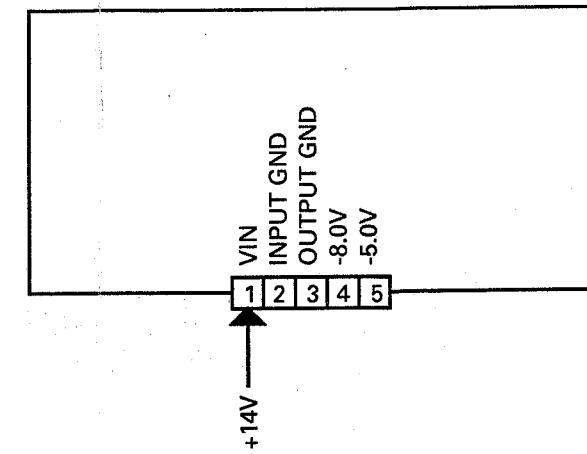


Fig.7

Notes:

1. Adjustment of the output voltage of DC/DC converter should have been done.
2. PWM control switch should be "L" (at VOL step 15 and above).
3. For adjustment, rough adjustment should be made by VR501 and VR502 as soon as the power is turned ON.
Complete adjustment should be done in 2 to 3 minutes after the power is turned ON.
4. For check, measurement should be taken after the duration of 3 minutes since the power is turned ON.

●RS-A1X

	Adjusting Point	Adjustment Method
IDLE CURRENT	VR501, VR502	DC V meter (LA-LC, LB-LD, RA-RC, RB-RD) : 308mV±22mV
IDLE CURRENT	VR501, VR502	DC V meter (LA-LO, LB-LO, LC-LO, LD-LO, RA-RO, RB-RO, RC-RO, RD-RO) : 22mV±11mV

●RS-A2X

	Adjusting Point	Adjustment Method
IDLE CURRENT	VR501, VR502	DC V meter (LA-LC, LB-LD, RA-RC, RB-RD) : 154mV±9mV

Note:

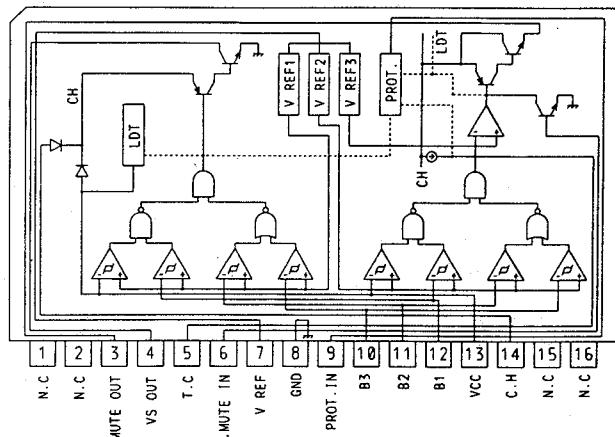
1. This is examination for separate DC/DC converter.

●RS-A1X, RS-A2X

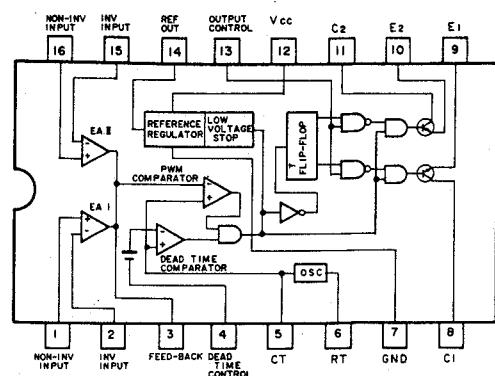
	Adjustment Method
DC/DC converter output voltage (+)	DC V meter (+8.0V-GND) : +8.0V DC V meter (+5.0V-GND) : +5.0V
DC/DC converter output voltage (-)	DC V meter (-8.0V-GND) : -8.0V DC V meter (-5.0V-GND) : -5.0V

●ICs

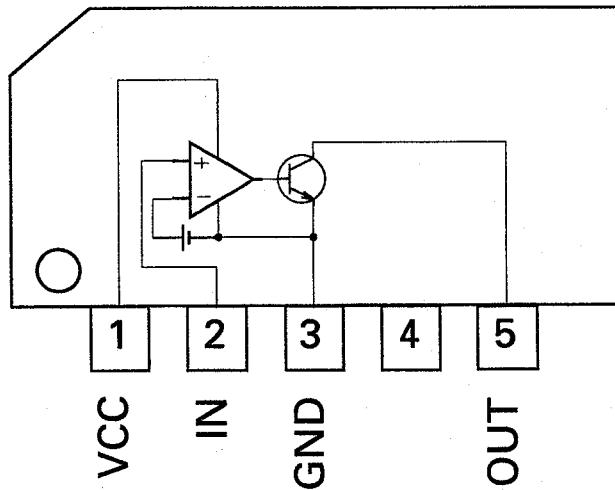
TA8194Z



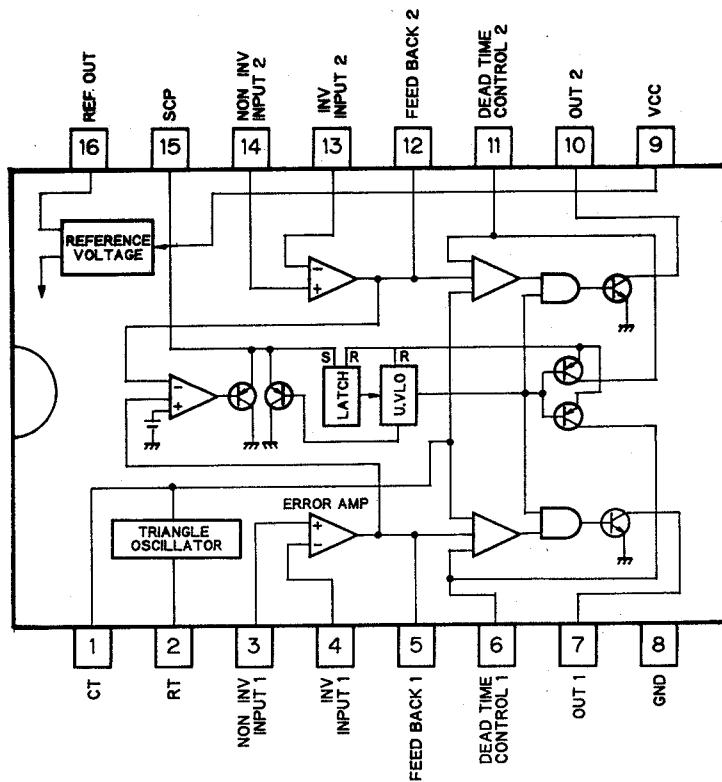
UPC494C



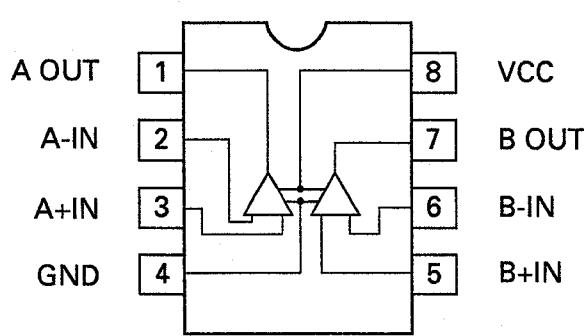
M51946BL



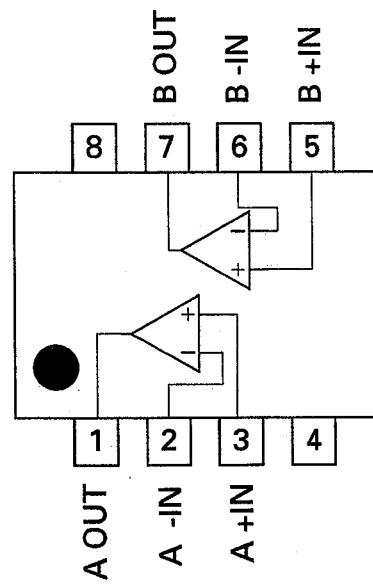
TL1451ANS



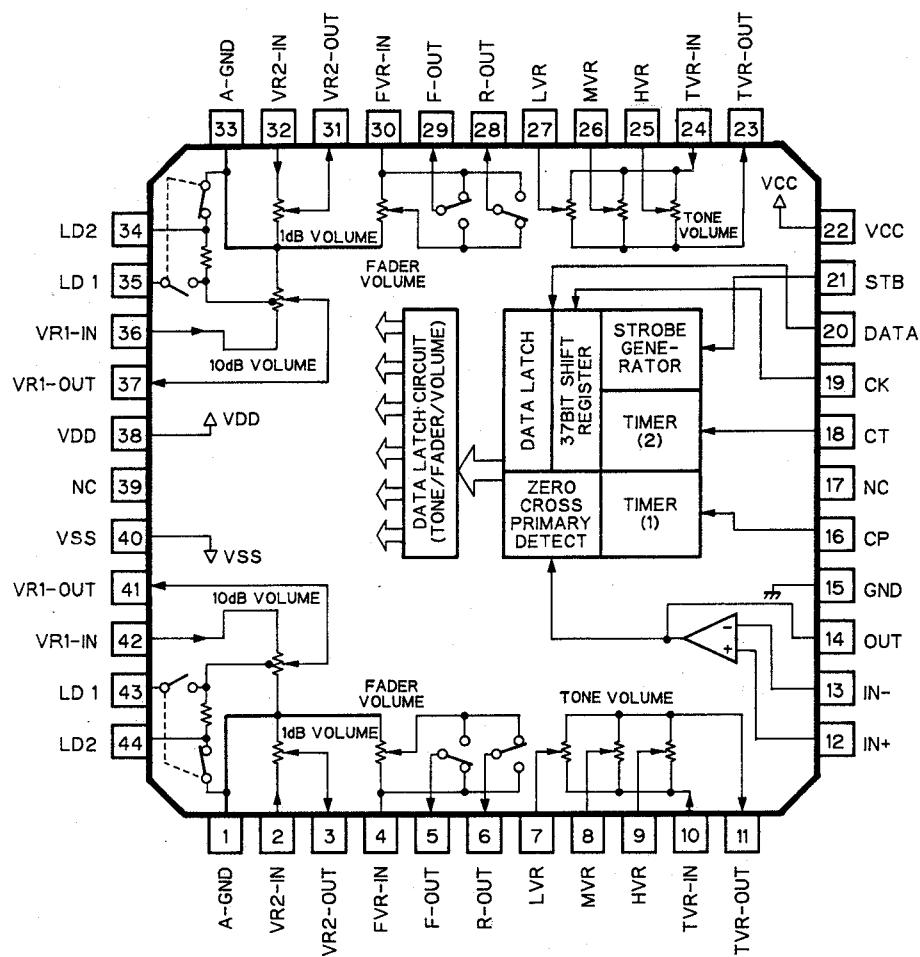
NJM5532MD



NJM2082M



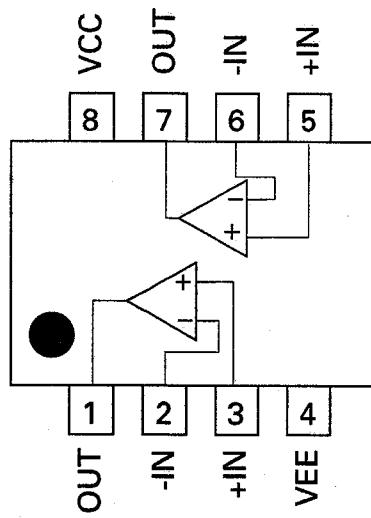
*TC9233F



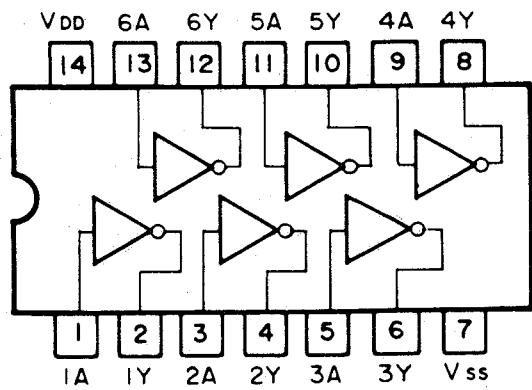
IC's marked by* are MOS type.

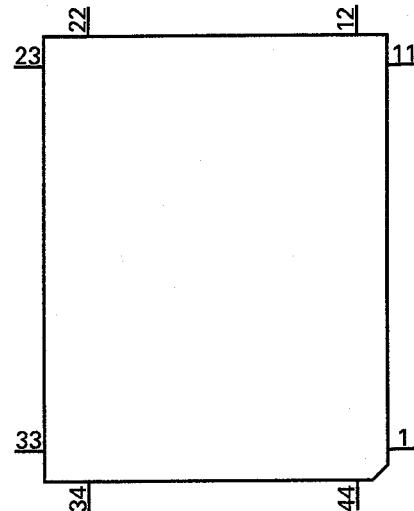
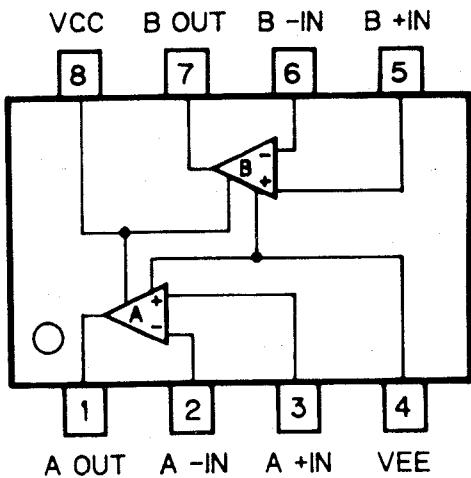
Be careful in handing them because they are very liable
to be damaged by electrostatic induction.

NJM4558M



*TC74HCU04AF





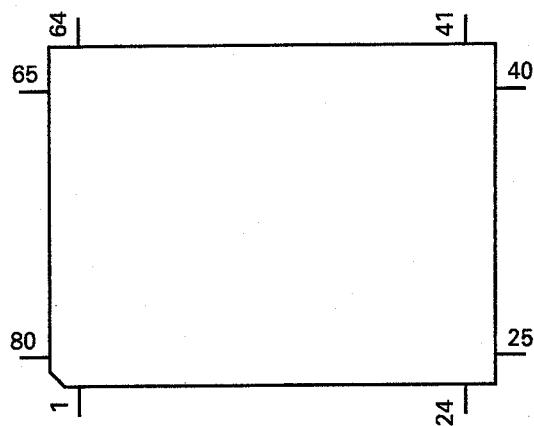
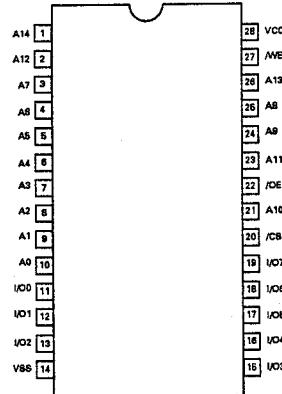
● Pin Functions(CD0004AF)

Pin No.	Pin Name	I/O	Function and Operation
1	RESET	I	Power ON/RESET input. Reset with "L"
2	16/24	I	Input format selecting terminal. provided with a pull-up resistor
3	A/M	I	Input format selecting terminal. provided with a pull-up resistor
4,5	S1-2	I	Input selecting terminal
6-9	IN1-4	I	Data input terminal
10,11	TEST1-2	I	Terminal for testing. Normally "H" or open. Provided with a pull-up resistor
12	PCVS		Input for setting self-propelling frequency for VCO
13	PCOUT1		Phase comparator output 1
14	R		Connecting terminal for VCO adjusting resistor
15	VCOIN		Control voltage input for VCO
16	VDD1		Power terminal for VCO line
17	VCOOUT		VCO output (384 fs)
18	VSS1		Ground terminal for VCO line
19,20	CA,CB		Connecting terminal for VCO adjusting capacity
21	PCOUT2		Phase comparator output 2
22	SIGIN	I	Input terminal for external VCO
23	BCK	O	Demodulated data bit clock output (64 fs)
24	DATA	O	Demodulated audio data output
25	LRCK	O	Demodulated data LR clock output. L channel with "H"
26,27	OMODE0-1	O	Data output format selecting terminal
28	VSS		Ground terminal for logic line
29	BLOCK	O	Block start output terminal
30	UBIT	O	User data output terminal
31	CBIT	O	Channel status output terminal
32	VBIT	O	Validity output terminal
33	VDD		Power terminal for logic line
34	CS	I	Chip select input terminal. Selecting state with "L"
35	SDATA	O	Serial data output terminal
36	SCK	I	Serial clock input terminal
37	COPY	O	Copy prohibit information output terminal
38	A/D	O	Audio/digital data information output terminal
39	DAT	O	DAT information output terminal
40,41	FS0-1	O	Sampling frequency information output terminal
42	EMPH	O	Emphasis information output terminal
43	ERR	O	Data reading error output terminal. Error with "H"
44	VCOINH	I	Input terminal for stop of oscillation of internal VCO. Stop with "H"

●Pin Functions (PD0100A)

Pin No.	Pin Name	I/O	Function and Operation
1	MOUT	O	Master clock output pin
2	DRSEL	I	DRDY logic select pin
3	XIN	I	Crystal oscillating element connection pin
4	XOUT	O	Crystal oscillating element connection pin
5	EXCK	I	External clock input
6	VDD1		Power supply
7	WE0		Write enable pin of external RAM
8	OE0		Output enable pin of external RAM
9	CE1		Chip enable pin of external RAM
10	CE0		Chip enable pin of external RAM
11-26	RAMIO15 -RAMIO0	O	Data input output pin of external RAM
27	A14	O	Address output pin of external RAM
28	VSS1		GND
29-36	A13-A6	O	Address output pin of external RAM
37	VSS2		GND
38-43	A5-A0	O	Address output pin of external RAM
44	VDD2		Power supply
45	RESET	I	Reset input signal pin
46	DRDY	O	U-COM I/F data reception enable state output pin
47	RDATA	I	U-COM I/F data input
48	RCK	I	U-COM I/F data input
49	A/D	I	U-COM I/F address / data discrimination input pin
50	CS	I	Chip select input pin of DASP
51	CKSEL2	I	Select pin for the clock outputted from CKOUT
52	CKSEL1	I	Master clock frequency select pin
53	XSEL	I	Frequency / external clock select pin
54	WCK	O	Word clock output pin
55	64FSOUT2	O	64FS bit clock output pin
56	64FSOUT1	O	64FS bit clock output pin
57	32FSOUT2	O	32FS bit clock output pin
58	32FSOUT1	O	32FS bit clock output pin
59	LRCKOUT2	O	LR clock output pin
60	LRCKOUT1	O	LR clock output pin
61	VDD3		Power supply
62-64	AOUT3 -AOUT1	O	Lch, Rch audio serial data output pin
65	LRCKIN2	I	LR clock input pin 2 (For read audio serial data)
66	BCKIN2	I	Bit clock input pin 2 (For read audio serial data)
67	AIN2	I	Lch, Rch audio serial data input pin 2
68	LRCKIN1	I	LR clock input pin 1 (For read audio serial data)
69	BCKIN1	I	Bit clock input pin 1 (For read audio serial data)
70	AIN1	O	Lch, Rch audio serial data input pin 1
71	BCKINV		Output logic select pin (32FSOUT1, 2 64FSOUT1, 2 when audio through mode)
72	LRCKINV		Output logic select pin (LRCKOUT1, 2 when audio through mode)
73	THRU		Audio through mode or normal mode select pin
74	ADCLRCK	O	LR clock output pin for A/D converter
75	ADCBC	O	Bit clock output pin for A/D converter
76	VSS3		GND
77-79	TP3-TP1	I	Test mode pin (Normal : Open)
80	CKOUT	O	Internal system clock or master clock 3/2 divider output pin

*PD0100A

*GGC1022
(HM62256ALFPI-12T)

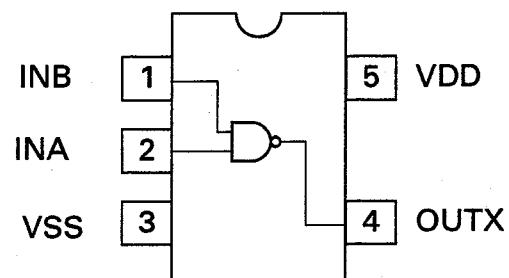
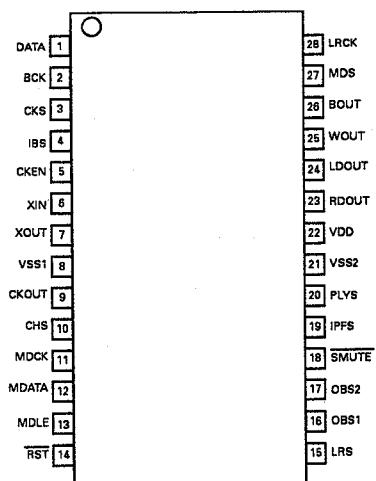
A0-A14 :Address input
 I/O0-I/O7:Data input/output
 /CS :Chip enable
 /WE :Write enable
 /OE :Output enable

●Pin Functions (PD0155AM)

Pin No.	Pin Name	I/O	Function and Operation
1	DATA	I	Serial data
2	BCK	I	Bit clock
3	CKS	I	XIN (Master clock) frequency select (H:384fs,L:256fs)
4	IBS	I	Input data format select
5	CKEN	I	X'tal control
6	XIN	I	X'tal input
7	XOUT	O	X'tal output
8	VSS1		GND1
9	CKOUT	O	Master clock output
10	CHS	I	Play data channel select (1ch play mode) (H:Lch,L:Rch)
11	MDCK	I	Clock input for micro computer data
12	MDATA	I	Micro computer data input
13	MDLE	I	Latch enable signal for micro computer data
14	RST	I	System reset (H:Normal,L:Reset)
15	LRS	I	LR clock polarity select
			LRS | LRCK H | H | L H | Lch | Rch L | Rch | Lch
16	OBS1	I	Output data bit length select
17	OBS2	I	
18	SMUTE	I	Soft mute control (H:OFF,L:ON)
19	IPFS	I	Error correction function select
20	PLYS	I	Play channel mode select (H:2ch play,L:1ch play)
21	VSS2		GND2
22	VDD		+5V
23	RDOUT	O	Rch serial data output
24	LDOUT	O	Lch serial data output
25	WOUT	O	Word clock output
26	BOUT	O	Bit clock output for output data
27	MDS	I	Mode set select (H:Terminal control,L:Micro computer control)
28	LRCK	I	LR clock input

*PD0155AM

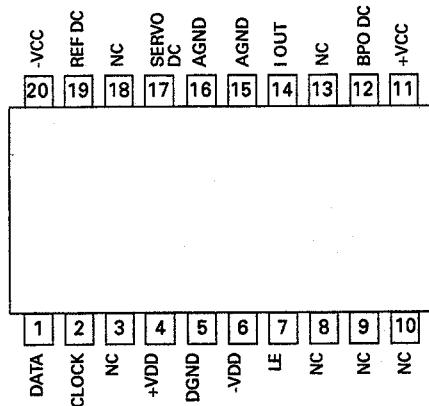
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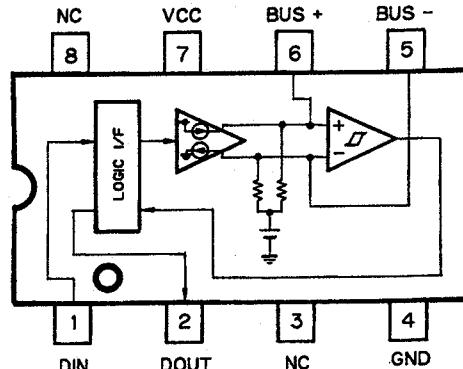
●Pin Functions (PCM1702UK)

Pin No.	Pin Name	I/O	Function and Operation
1	DATA	I	Serial data
2	CLOCK	I	Bit clock
3	NC		No connection
4	+VDD	I	Digital +5V
5	DGND	I	Digital GND
6	-VDD	I	Digital -5V
7	LE	I	Latch enable
8-10	NC		No connection
11	+VCC	I	Analog +5V
12	BPO DC	I/O	BPO decouple
13	NC		No connection
14	IOUT	O	Current output
15,16	AGND	I	Analog GND
17	SERVO DC	I/O	Servo decouple
18	NC		No connection
19	REF DC	I/O	REF decouple
20	-VCC	I	Analog -5V

*PCM1702UK



PA0051AM

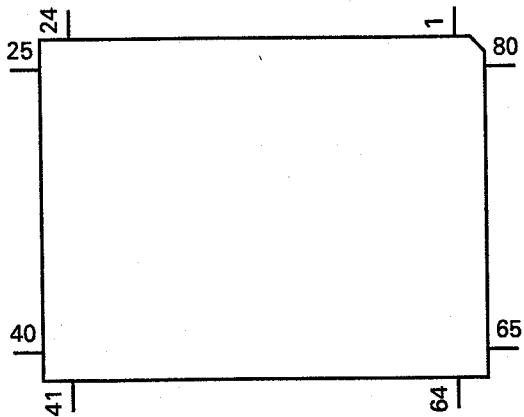


PD4308AM

●Pin Function(PD4308AM)

Pin	Pin Name	I/O	Function and Operation
1	IPSCK	I/O	Clock input/output
2	IPSI	I	Data input
3	IPSO	O	Data output
4	IPIRQ	I	Interrupt input
5	IPRW	O	Read / write output
6	X1		Crystal oscillator connection pin
7	X0		Crystal oscillator connection pin
8	GND		GND
9	RX	I	Data input
10	TX	O	Data output
11	NC		Not used
12	IPCD	O	Command/data output
13	IPCS	O	Chip select output
14	IPRST	O	Reset output
15,16	VDD		Power supply

*PD5210A

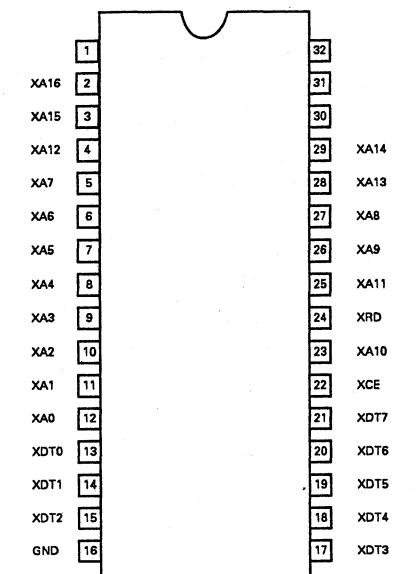


Output Format	Meaning
C	C MOS output
N	N channel open drain

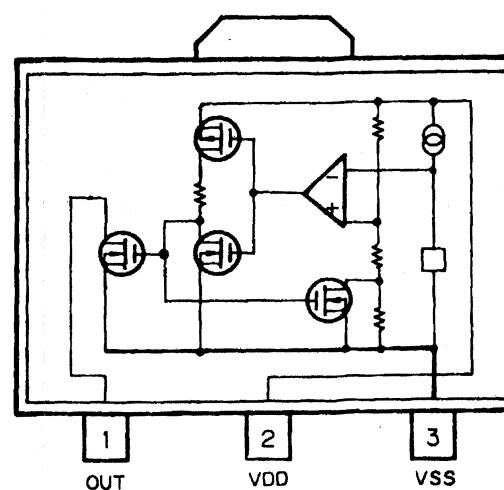
●Pin Functions (PD5210A)

Pin No.	Pin Name	I/O	Output Format	Function and Operation
1	SWST1	O	C	Strobe (Function SW)
2	SWST0	O	C	Strobe (Address)
3	DSPEN	O	C	DSP enable
4	DIRERR	I	C	DIR error detector
5	DIRDA	I	C	Audio (:H) / digital (:L) switch
6	DIRFS1	I	C	Frequency select terminal bit 1
7	DIRFS0	I	C	Frequency select terminal bit 0
8	DRDY	I	C	Microcomputer I/F reception enable input
9	IPSCK	O	N	IP-BUS serial clock
10	IPOUT	O	N	IP-BUS serial data transmission
11	IPIN	I	C	IP-BUS serial data reception
12	DSPRST	O	C	DSP reset control
13	DSPDA	O	C	DSP data (:H) / address (:L) switch
14	AUDERR	I	C	Mute circuit , error detector
15	MUTE	O	C	System mute
16	BSENS	I	C	Back up sense input
17	ASENSB	I	C	Acc sense input
18	TESTIN	I	C	Test signal input
19	AMUTE	O	C	Audio mute
20	SYSPW	O	C	System power
21	DSPCK	O	C	DSP serial clock output
22	DSPOUT	O	C	DSP serial data output
23	NC	I	C	Not used
24	XA15	O	C	External ROM address output
25	IPIREQ	I	C	IP-BUS interrupt request
26	CNVSS	I	C	0V
27	RST	I	C	Reset
28,29	NC	I	C	Not used
30	XIN	I	C	Clock input
31	XOUT	O	C	Clock output
32	VSS	O	C	0V
33-40	XDT7-0	I	C	External ROM data input
41	XCE	O	C	External ROM chip enable
42-56	XA14-0	O	C	External ROM address output
57	XRD	O	C	External ROM read signal output
58-61	NC	O	C	Not used
62	ONW	I	C	Read cycle extension signal input
63	XPW	O	C	External ROM power
64	VCK2	O	C	Electronic volume 2 clock output
65	VCK1	O	C	Electronic volume 1 clock output
66	VST	O	C	Electronic volume strobe
67	VDT	O	C	Electronic volume data output
68	IPCD	O	C	IP-BUS command (:H) / data (:L) switch
69	IPRW	O	C	IP-BUS read (:L) / write (:H) switch
70	IPCS	O	C	IP-BUS chip select
71	IPRST	O	C	IP-BUS reset control
72	IPPW	O	C	IP-BUS power
73	VCC	I	C	Power supply 5V
74	VREF	O	C	0V
75	AVSS	O	C	0V
76	NC	I	C	Not used
77-79	SWDT2-0	I	C	SW data input
80	SWST2	O	C	Strobe (Fader select SW)

*PD4453AM



*S-80735AN-DZ



RS-A1,A2

2

3

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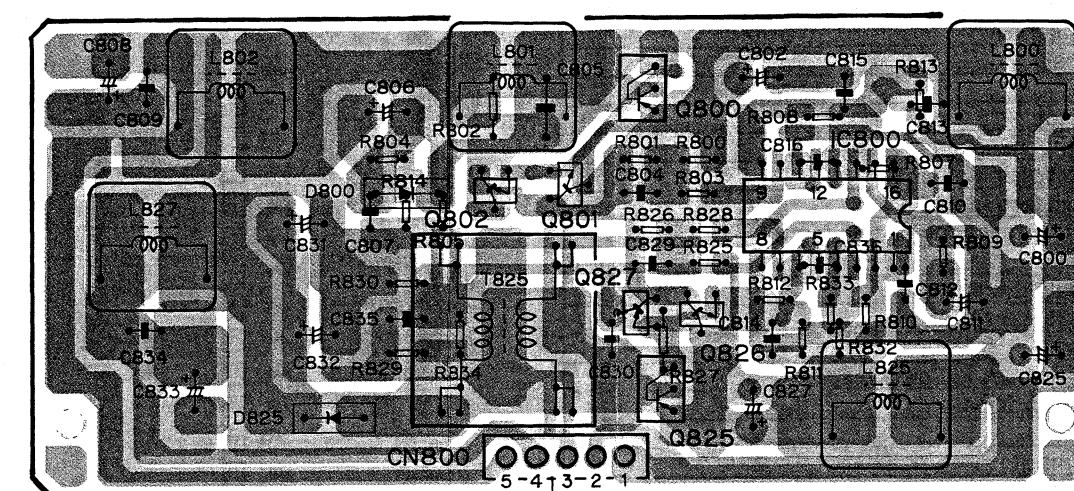
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6

4. CONNECTION DIAGRAM(1)

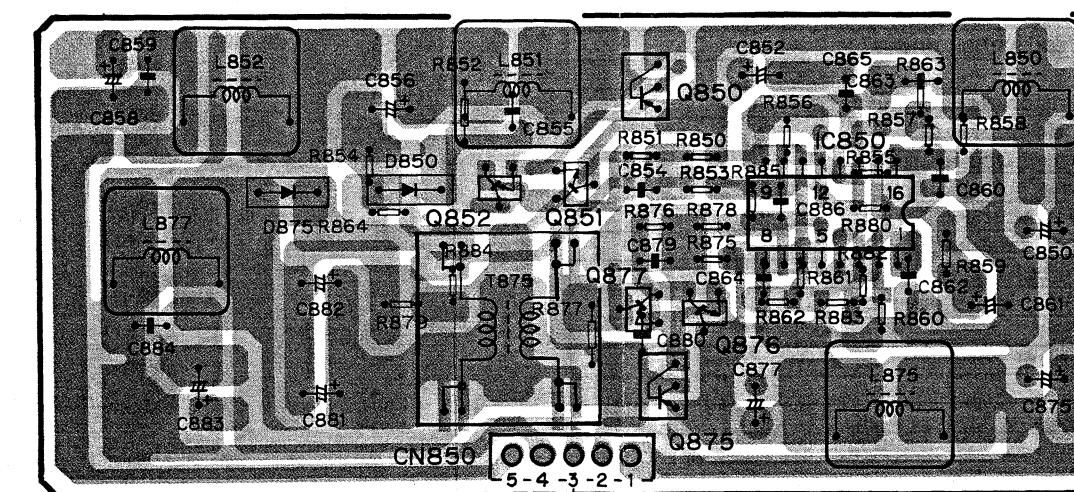
DC/DC CONVERTER(+) P.C. BOARD

Q800
Q827
IC, Q
Q802 Q801 Q825 Q826 IC800



DC/DC CONVERTER(-) P.C. BOARD

Q850
Q877
IC, Q
Q852 Q851 Q875 Q876 IC850



AMP P.C.BOARD
CN800

AMP P.C.BOARD
CN850

A

B

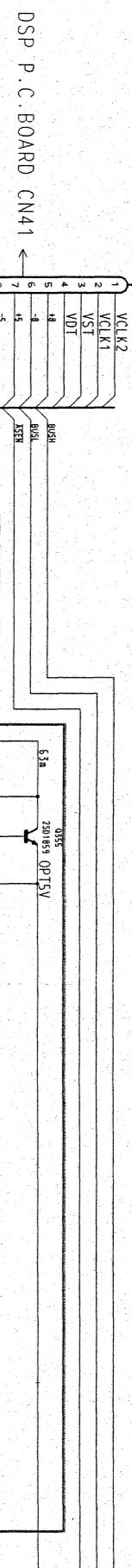
C

D

Fig.10

6. SCHEMATIC CIRCUIT DIAGRAM(2) (RS-A1/UC, EW)

AMP P.C. BOARD



DSP P.C. BOARD CN41

CN9

VOLK1

VSI

VDT

BUSH

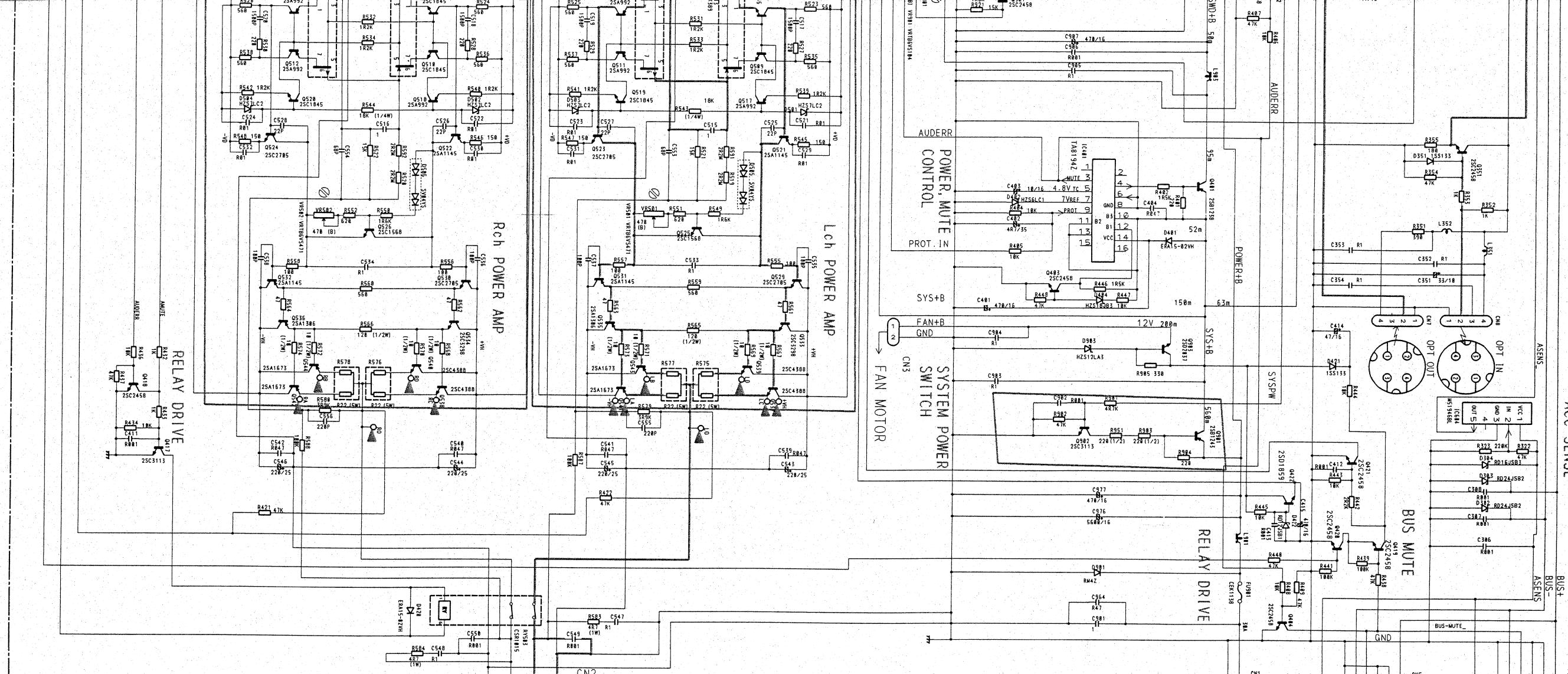
SER

AUDERR

SYSTEM

SER

VDD



NOTE :

- Symbol indicates a resistor.
- No differentiation is made between child resistors and discrete resistors.
- II- Symbol indicates a capacitor.
- The underlined indicates the switch position.
- Decimal points for resistor and capacitor fixed values are expressed as:

2.2-R22

SWITCH
AMP P.C. BOARD
SW 901 : B.F. SWITCH . . . LOW-HIGH

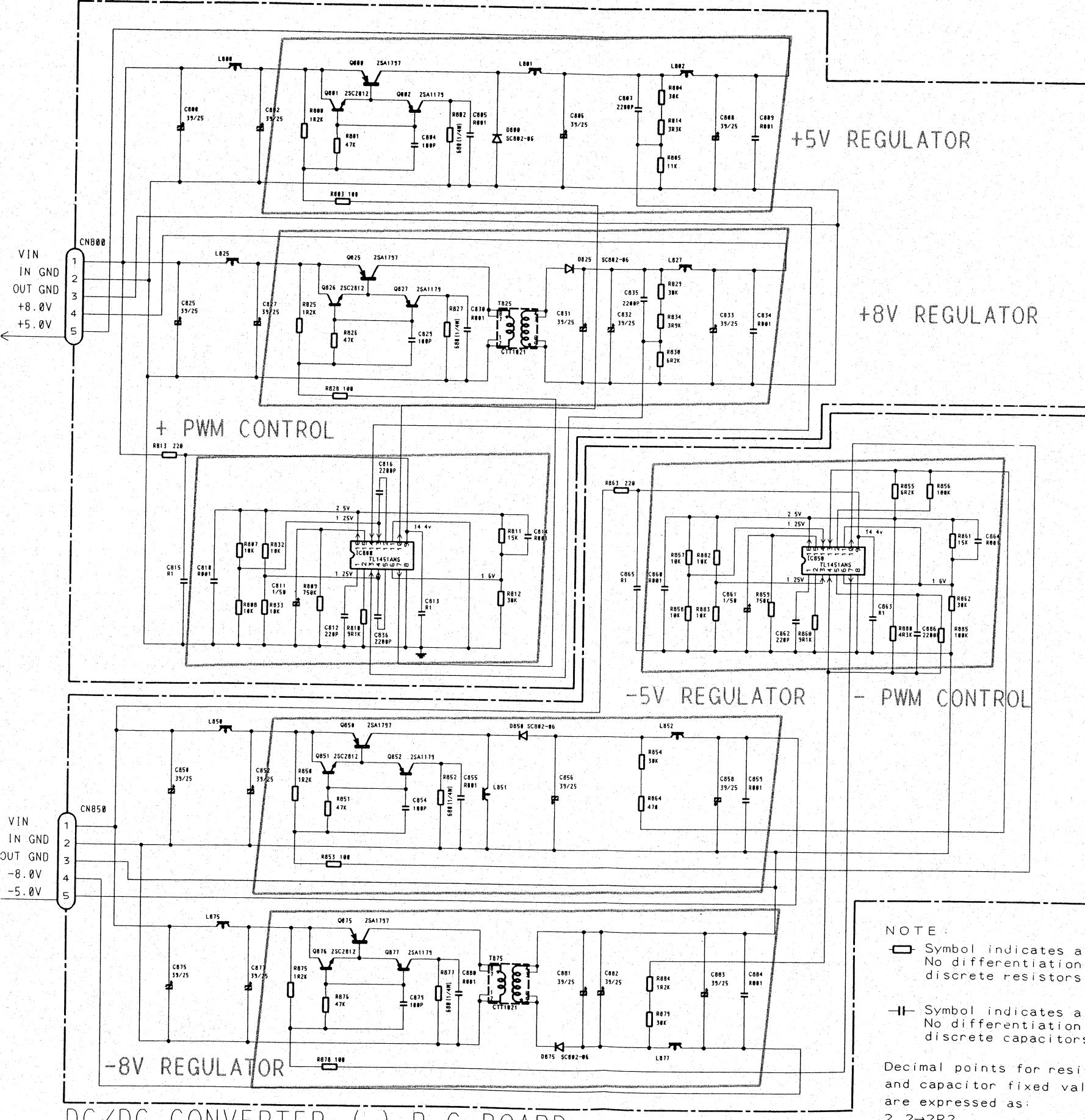
The underlined indicates the switch position.

5. SCHEMATIC CIRCUIT DIAGRAM(1)

DC/DC CONVERTER (+) P.C. BOARD

A

AMP P.C. BOARD



A

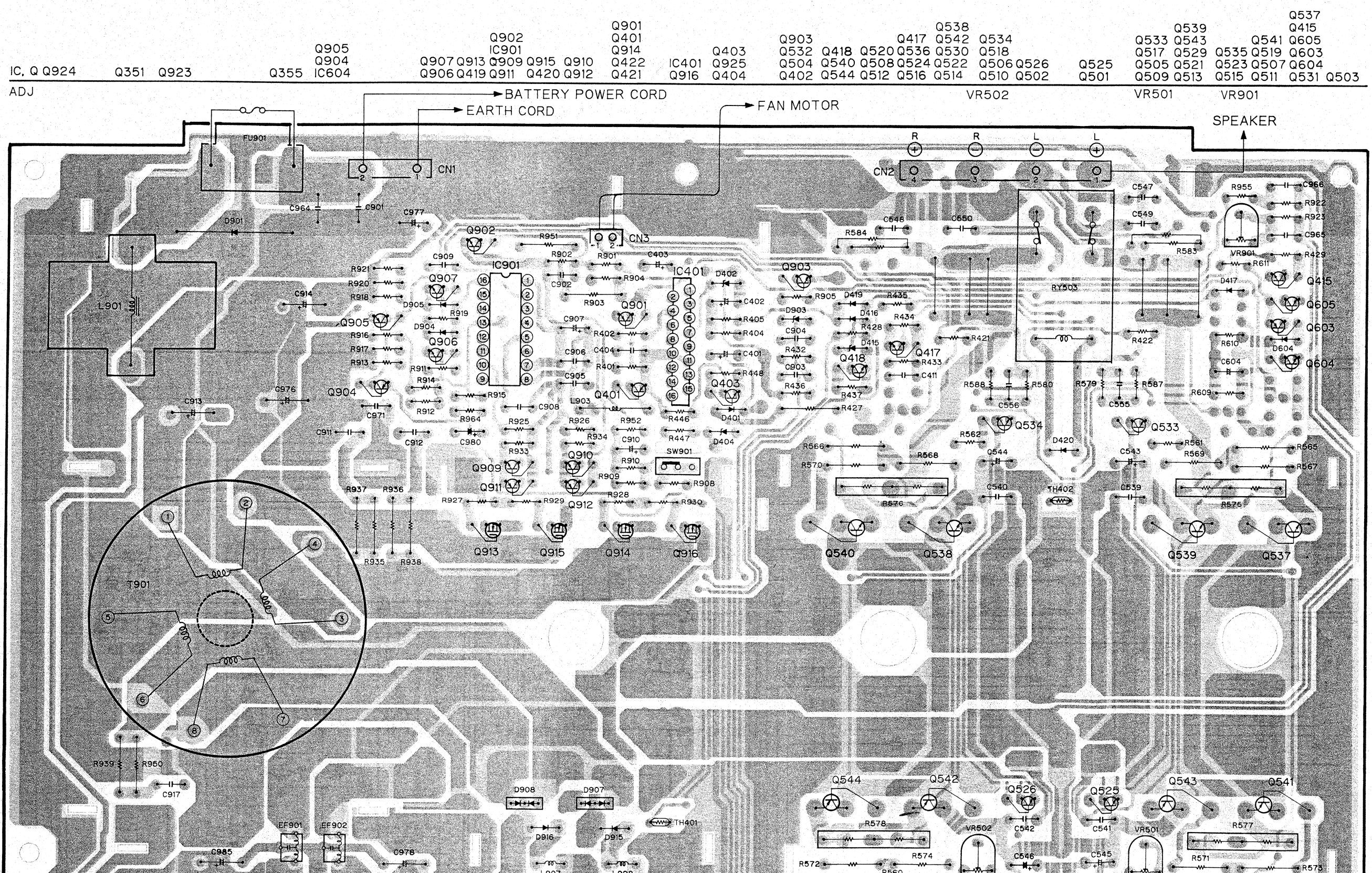
B

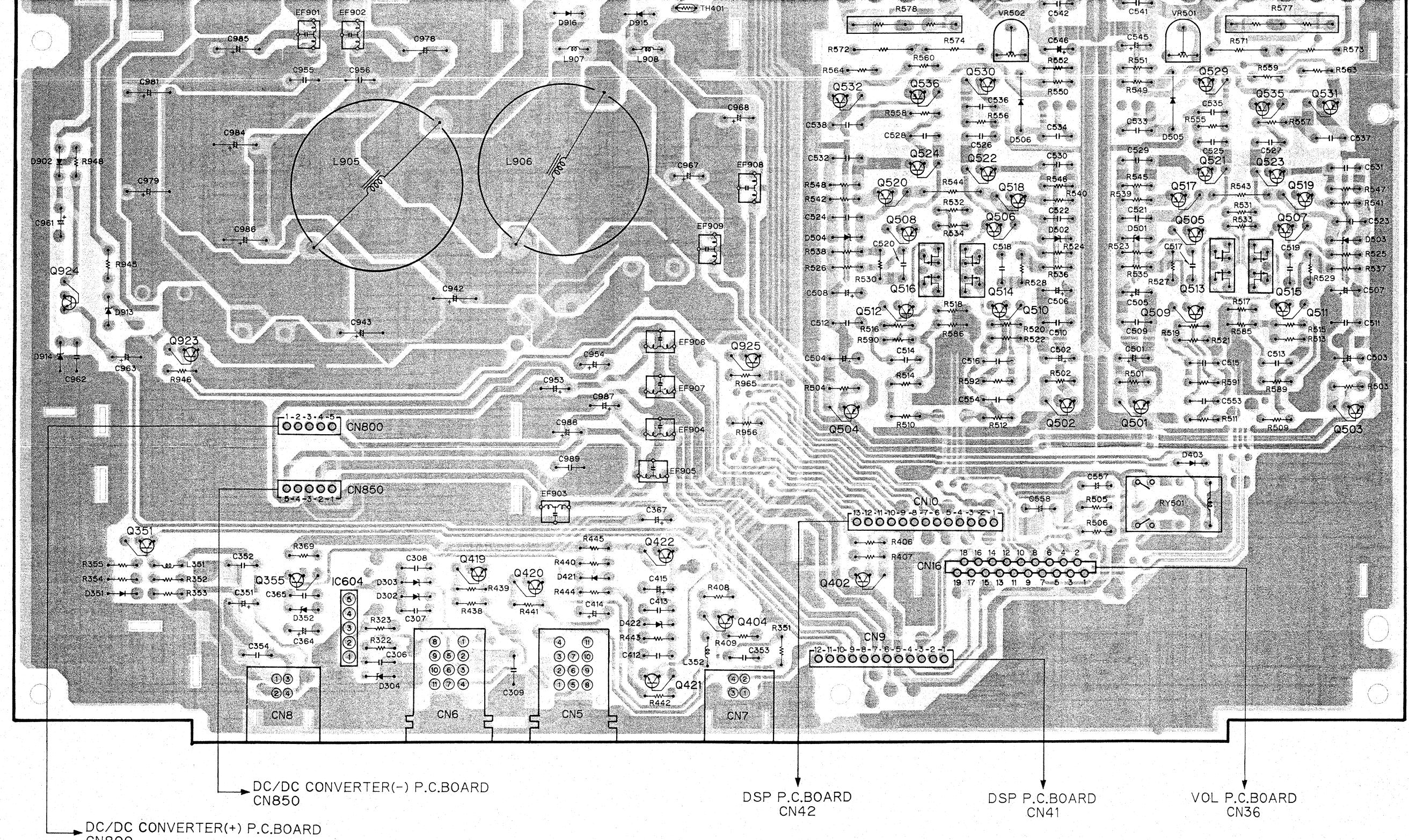
C

D

7. CONNECTION DIAGRAM(2) (RS-A1/UC, EW)

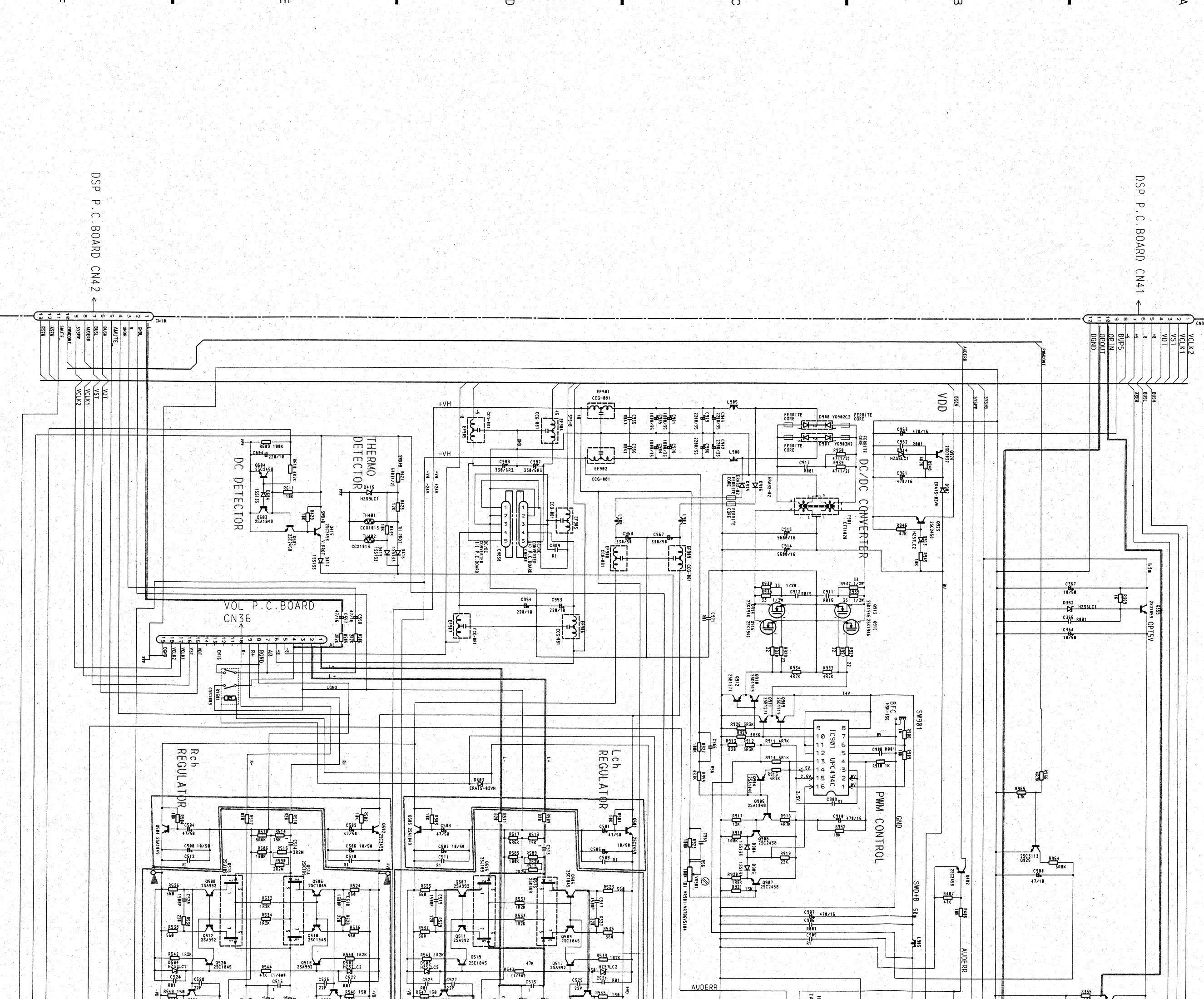
AMP P.C. BOARD

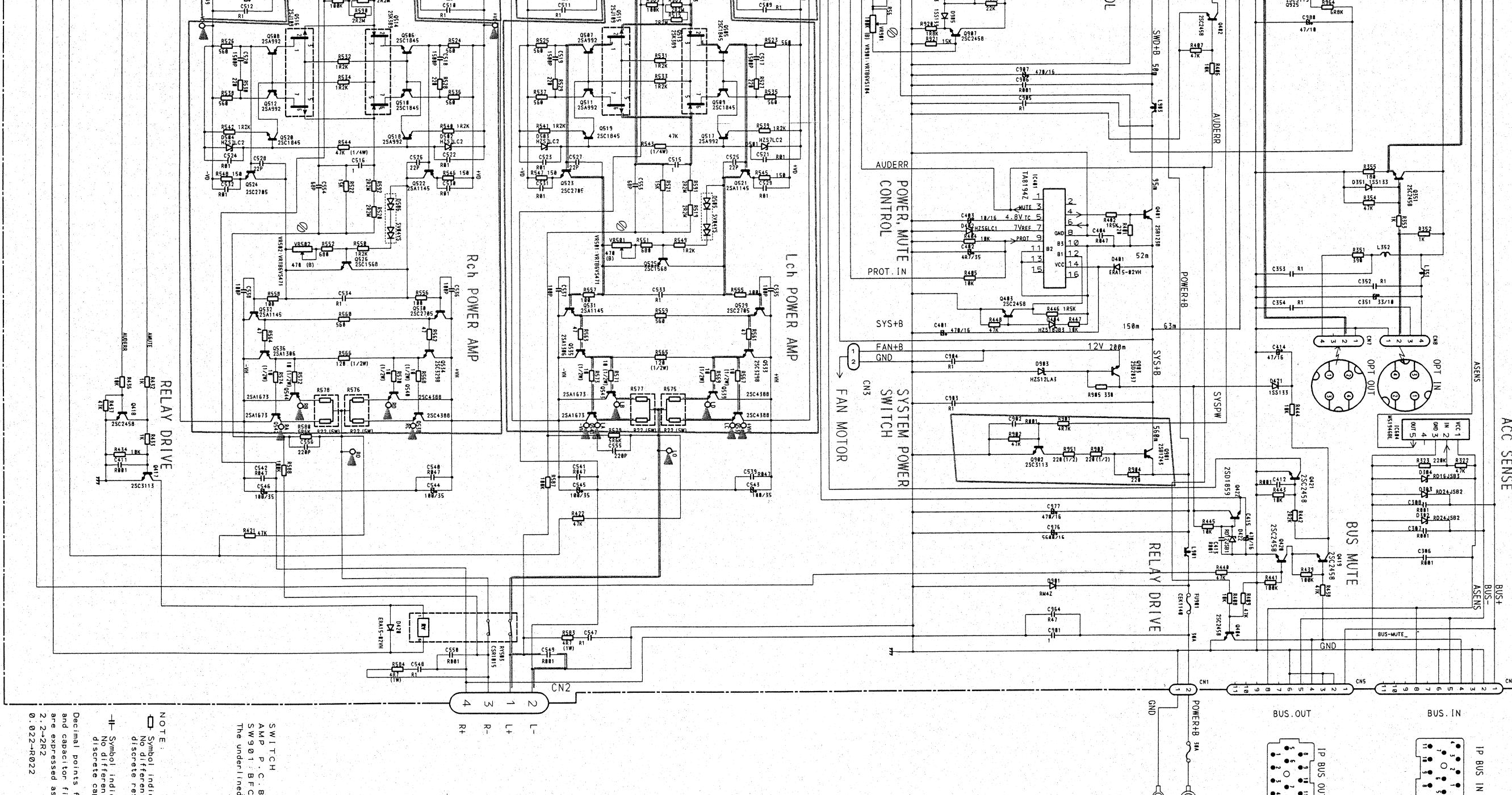




8. SCHEMATIC CIRCUIT DIAGRAM(2) (RS-A2/UC, EW)

AMP P.C. BOARD





NOTE:

- Symbol indicates a resistor. No differentiation is made between chip resistors and discrete resistors.
- ||- Symbol indicates a capacitor. No differentiation is made between chip capacitors and discrete capacitors.
- The underlined indicates the switch position.
- Decimal points for resistor and capacitor fixed values are expressed as: 0.22-2122

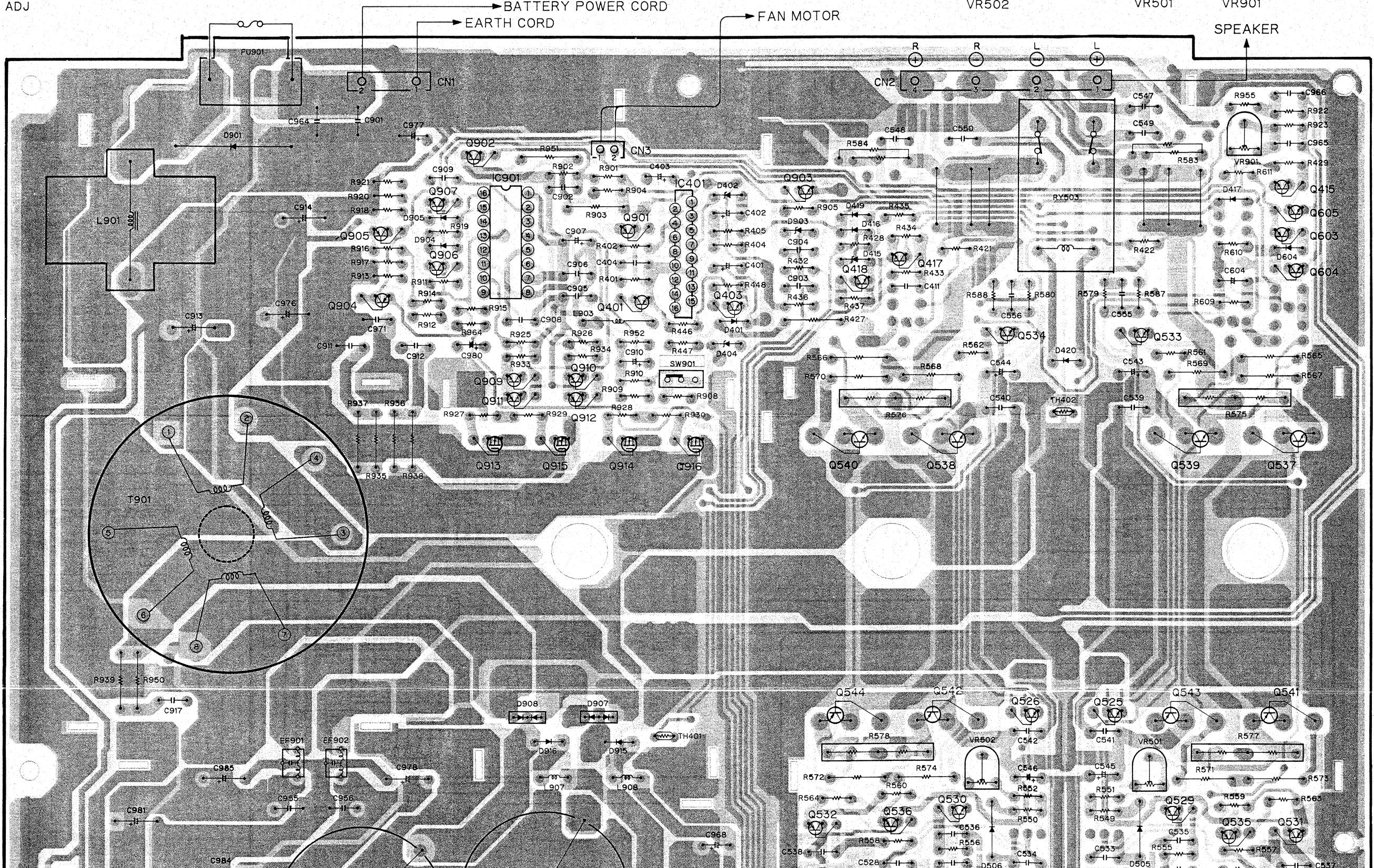
SWITCH
AMP P.C. BOARD
SW 901: BFC SWITCH . . . LOW-HIGH
 The underlined indicates the switch position.

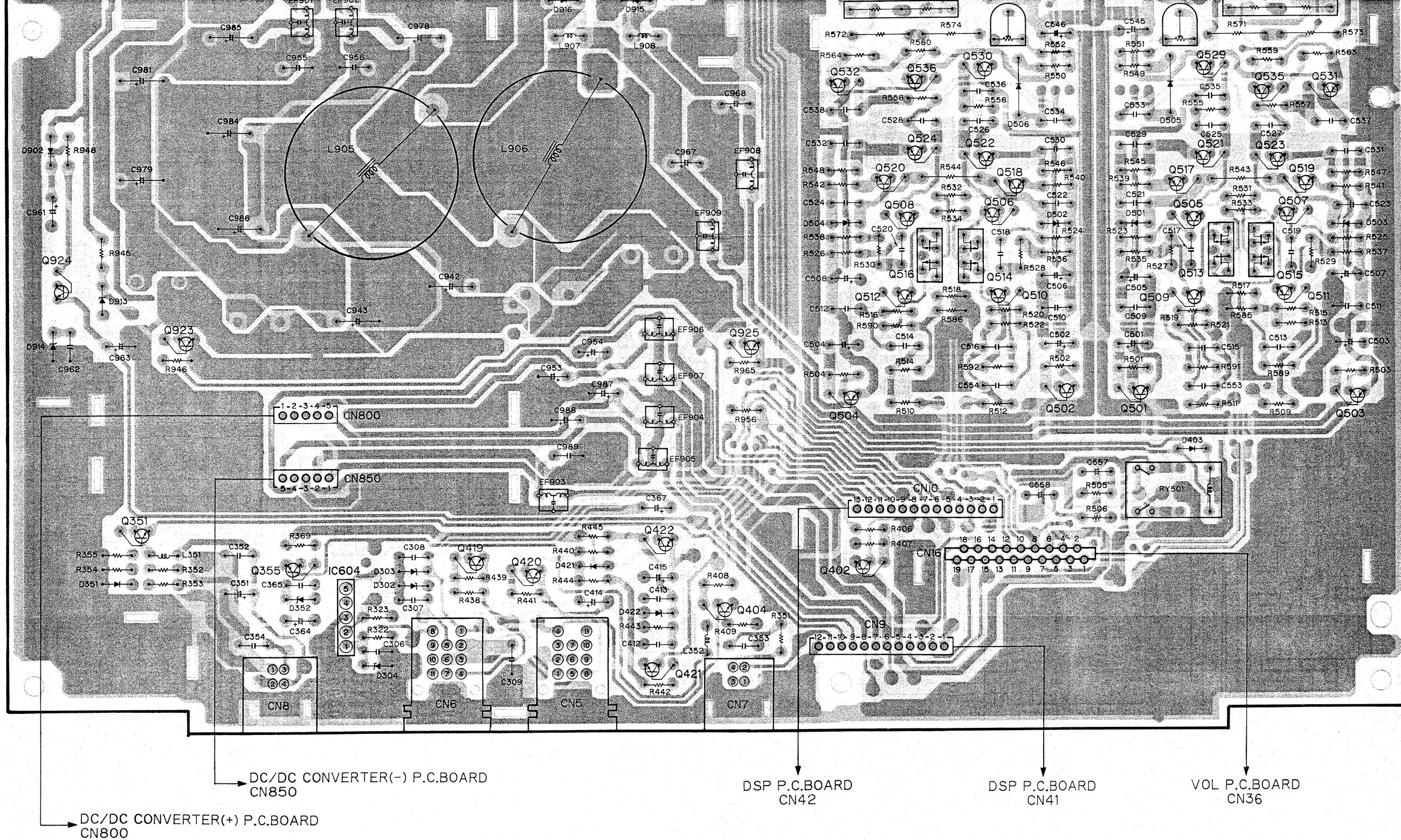
9. CONNECTION DIAGRAM(2) (RS-A2/UC, EW)

AMP P.C. BOARD

IC, Q Q924	Q351	Q923	Q905	Q904	Q901	Q902	Q401	Q903	Q417	Q538	Q539	Q537
			Q907	Q913	Q909	Q915	Q910	Q403	Q532	Q542	Q534	Q415
			Q906	Q419	Q911	Q420	Q912	IC401	Q536	Q530	Q518	Q543
							Q422	Q504	Q540	Q508	Q524	Q535
							Q421	Q402	Q544	Q512	Q522	Q519
								Q404	Q516	Q514	Q526	Q605
									Q510	Q502	Q505	Q521
									Q501	Q509	Q513	Q523
										Q515	Q511	Q507
										Q531	Q503	Q604

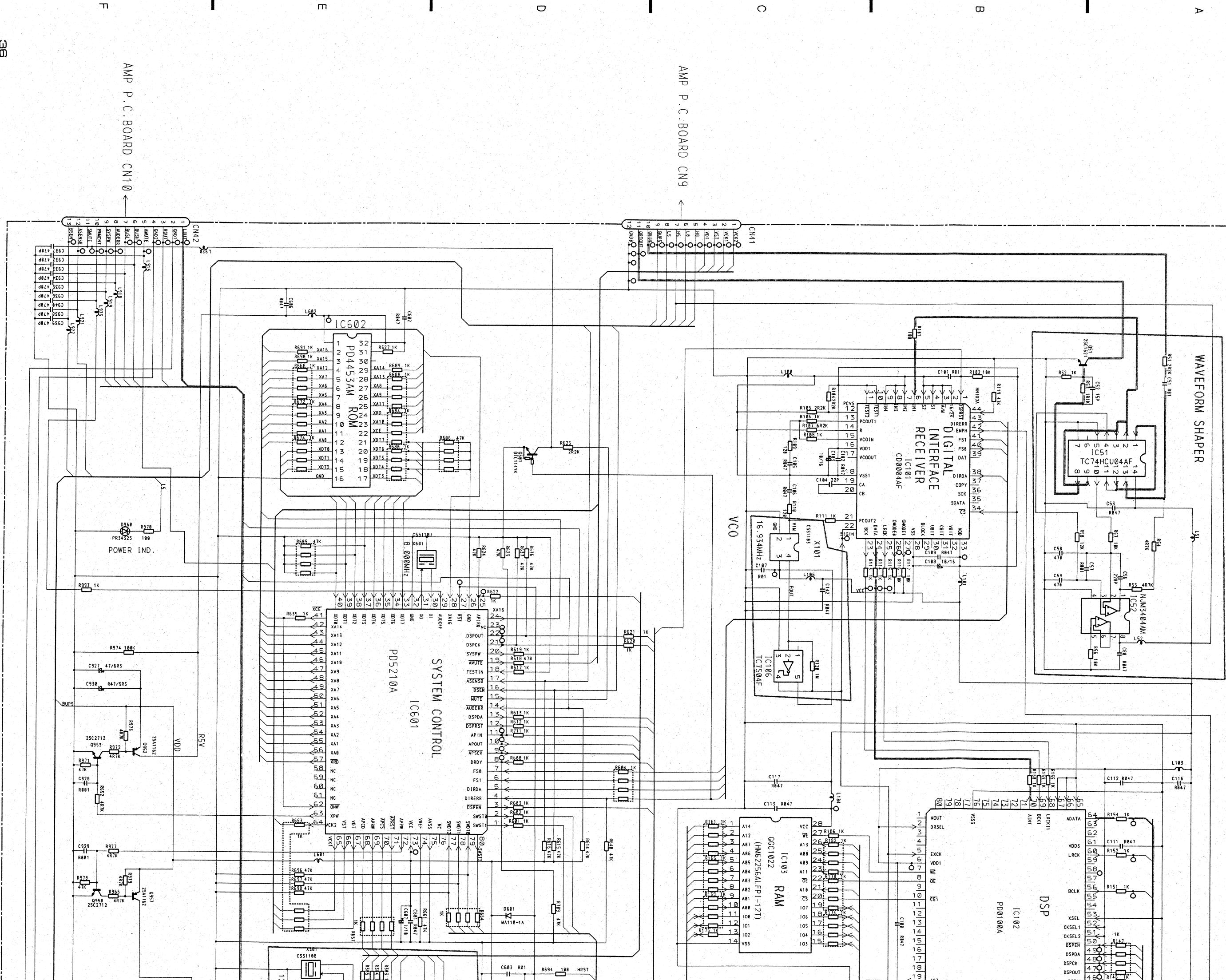
IC, Q Q924 Q351 Q923 Q905 Q904 Q901 Q902 Q401 Q903 Q417 Q538 Q539 Q537
 ADJ VR502 VR501 VR901

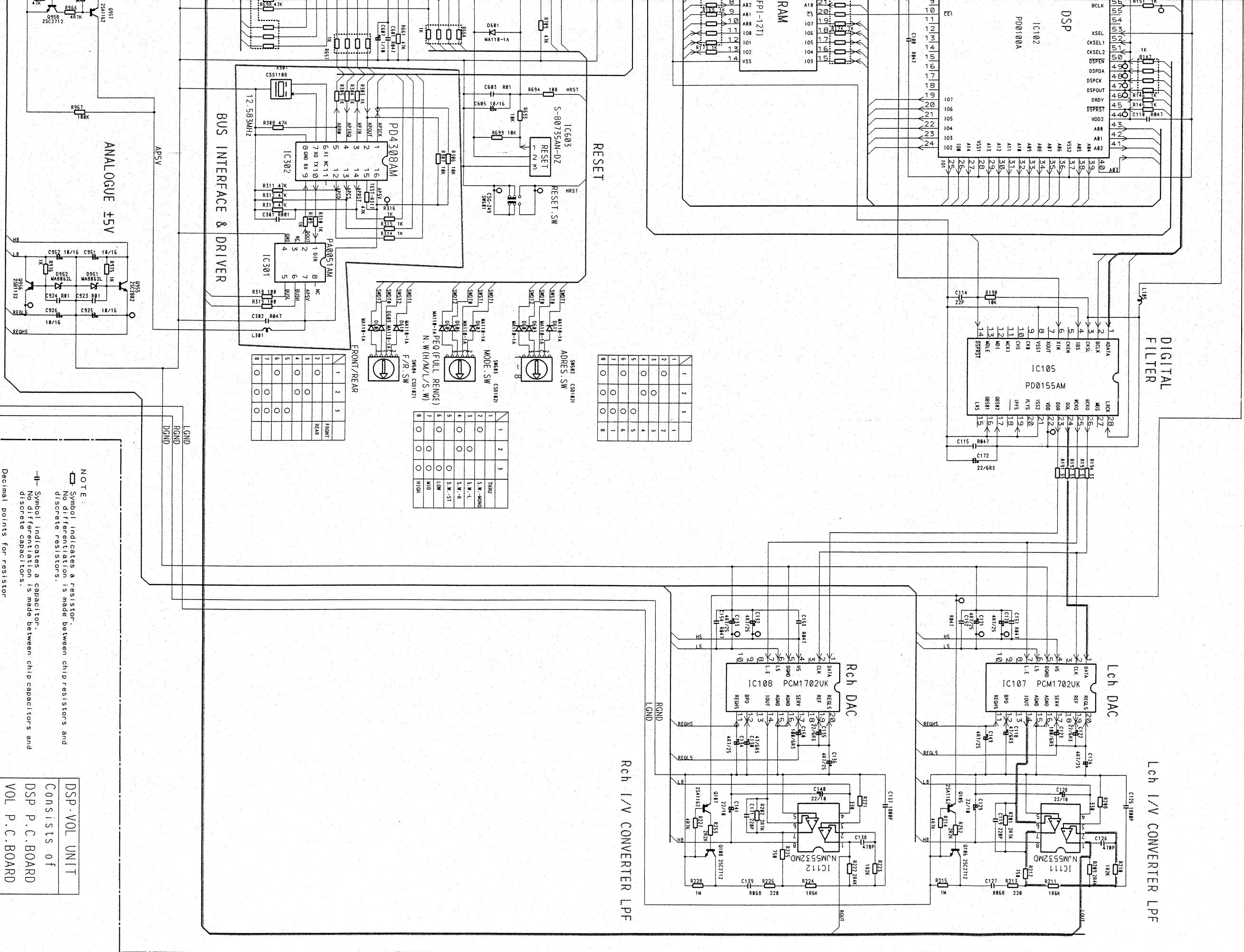




10. SCHEMATIC CIRCUIT DIAGRAM(3)

DSP P.C. BOARD





11. CONNECTION DIAGRAM(3)

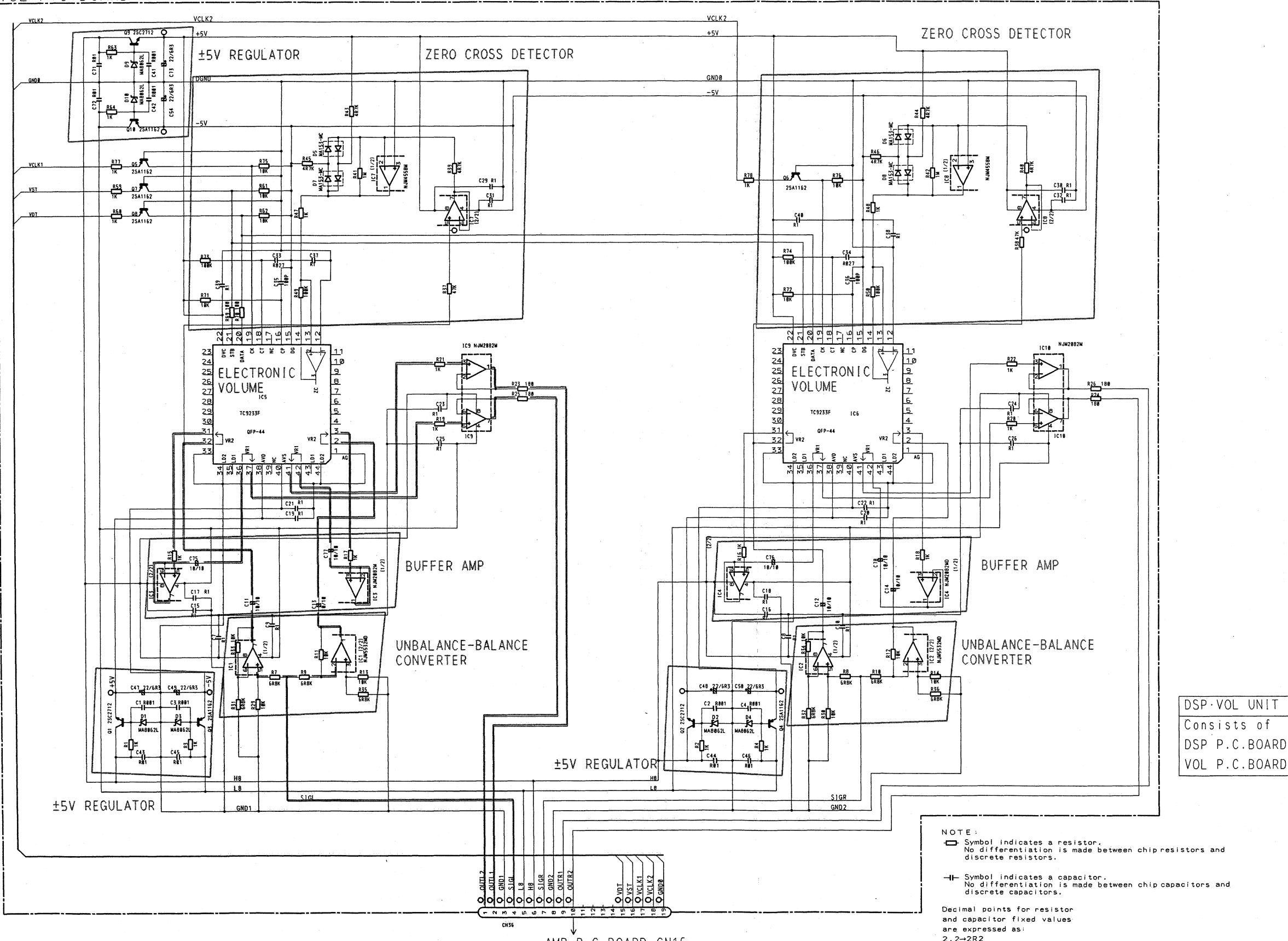
DSP P.C. BOARD

IC603	IC601	Q601	IC602
IC, Q Q953	Q952	Q958	Q957
IC301	IC302		

IC103	IC107	IC105	IC111	IC51
IC102	IC108	IC112	IC106	Q106 IC52
				Q105 IC101
				Q108 Q955
				Q107 Q956
				Q51

12. SCHEMATIC CIRCUIT DIAGRAM(4)

VOL P.C. BOARD



13. CONNECTION DIAGRAM(4)

RS-A1,A2

A

VOL P.C. BOARD

A

Q8	IC8	Q9	IC7
Q7	Q4	IC3	Q3
IC4	IC2	Q2 Q10	Q1
Q6	IC6	IC9	IC5

IC, Q

IC10

IC6

IC2

Q2

Q10

IC9

Q5

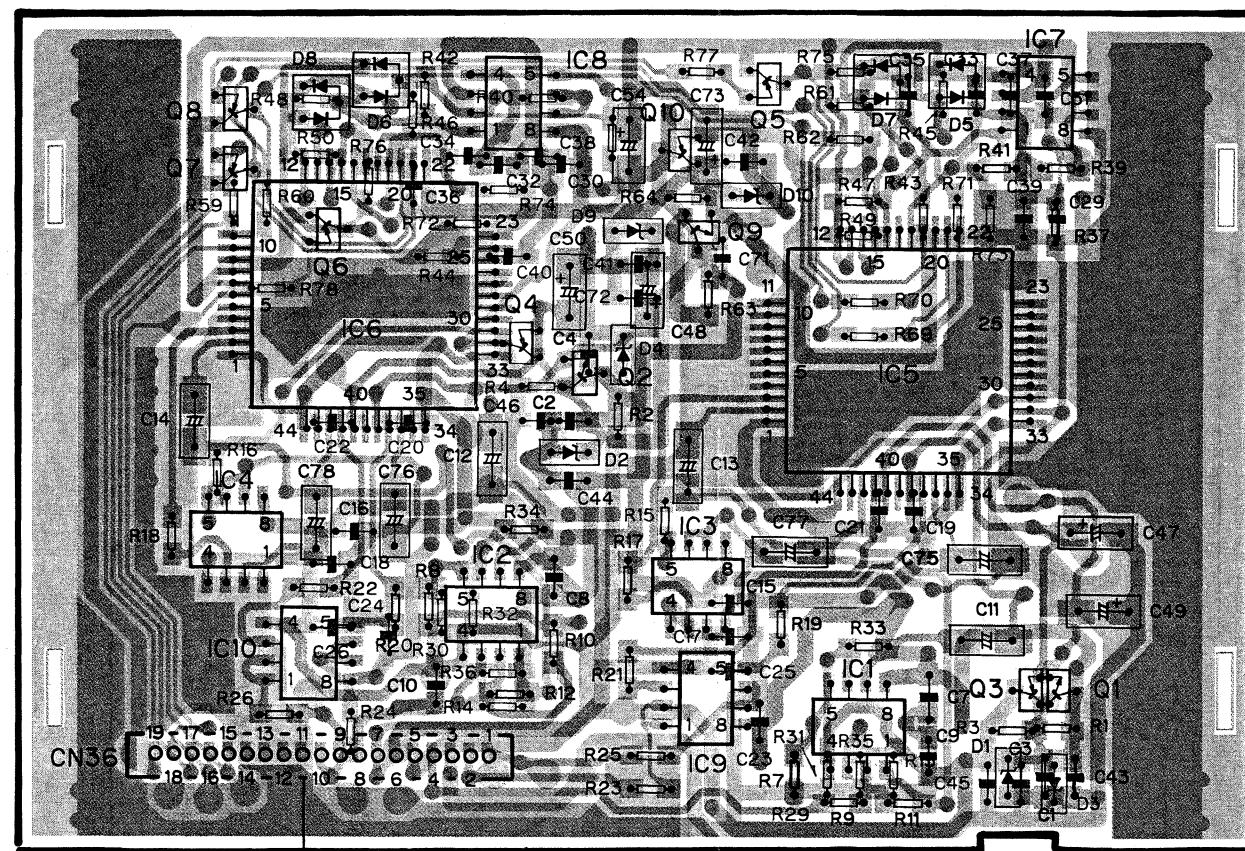
IC1

IC5

IC7

Q3

Q1



AMP P.C.BOARD
CN16

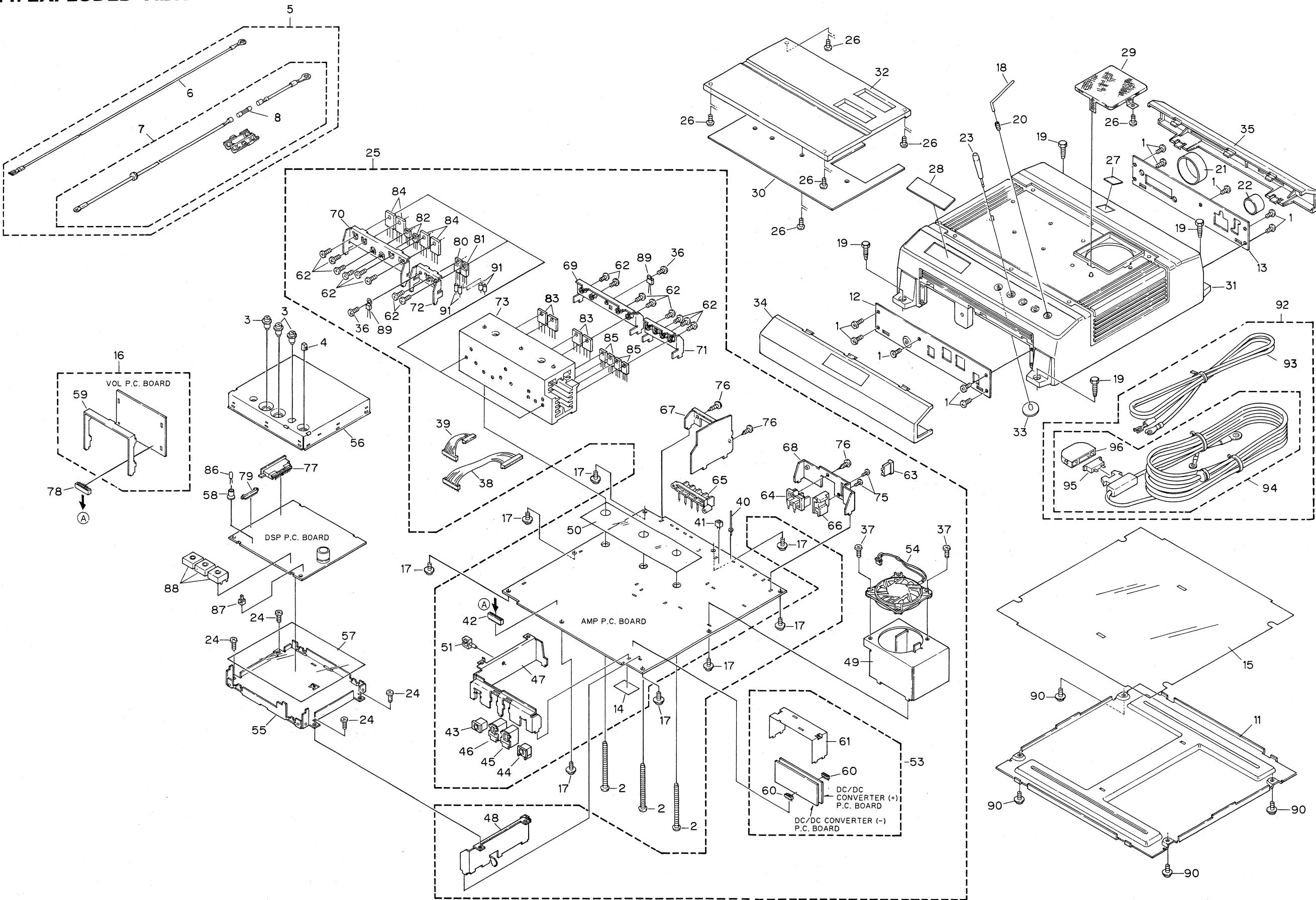
B

C

D

Fig.19

14. EXPLODED VIEW



NOTES:

- Parts marked by “*” are generally unavailable because they are not in our Master Spare Parts List.
- Parts marked by “◎” are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

● Parts List (RS-A2/UC)

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
1	Screw	BMS30P050FNI		41	Plug (2P) (CN3)	CKS-566	
2	Screw	BMZ40P650FZK		42	Plug (19P) (CN16)	CKS1729	
3	Knob	CAA1316		43	Connector (4P) (CN7)	CKS1940	
4	Button	CAC3566		44	Connector (4P) (CN8)	CKS2601	
5	Cord Assy	CDE3164		45	Connector (11P) (CN6)	CKS2602	
6	Cord	CDE3025		46	Connector (11P) (CN5)	CKS2603	
7	Cord	CDE3163		47	Holder	CNC4769	
8	Fuse (30A)	CEK1117		48	Holder	CNC4770	
9	.....			49	Holder	CNC4775	
10	.....			50	Insulator	CNM3614	
11	Case	CNB1704		51	Clamper	CNV1343	
12	Panel	CNB1705		52	.....	
13	Panel	CNB1708		53	DC/DC Converter Unit	CWR1041	
*	14	Spacer	CNM2983	54	Fan Motor	CXM1067	
	15	Insulator	CNM3613	55	Holder	CNC4773	
16	VOL Unit	CXX1102		56	Case	CNC4774	
17	Screw	BMS30P050FCU		57	Insulator	CNM3615	
18	Shaft	CLP1100		58	Holder	CNV3459	
19	Screw	HNC50P200FZK		59	Holder	CNC4780	
20	Screw	ZMD30H040FBK		60	Plug (5P) (CN800,850)	CKS1606	
21	Cover	CNS2211		61	Holder	CNC4782	
22	Cover	CNS2227		62	Screw	BMZ30P080FCU	
23	Driver	CNV3579		63	Fuse (30A)	CEK1140	
24	Screw	BMZ30P050FCU		64	Terminal (2P) (CN1)	CKE1019	
25	Amp Unit	CWH1158		65	Terminal (4P) (CN2)	CKE1018	
26	Screw	BMZ30P080FMC		66	Auto Fuse Holder	CKR1004	
27	Badge	CAH1399		67	Holder	CNC4771	
28	Badge	CAH1427		68	Holder	CNC4772	
29	Cover	CNC4781		69	Holder	CNC4776	
30	Spacer	CNM3616		70	Holder	CNC4777	
31	Heat Sink	CNR1270		71	Holder	CNC4778	
32	Heat Sink	CNR1281		72	Holder	CNC4779	
33	Lens	CNS2053		73	Sub Heat Sink	CNR1272	
34	Cover	CNS2654		74	.....	
35	Cover	CNS2655		75	Screw	PPZ20P080FZK	
36	Screw	BMZ30P080FMC		76	Screw	PPZ30P100FZK	
37	Screw (M3×10)	CBA1170		77	Plug (12P) (CN41)	CKS2489	
38	Connector (12P) (CN9)	CDE3850		78	Connector (19P) (CN36)	CKS1710	
39	Connector (13P) (CN10)	CDE3851		79	Connector (13P) (CN42)	CKS2202	
40	Clamper	CEF1005		80	Diode (D907)	YG902N2	

Mark	No.	Description	Part No.
81	Diode (D908)	YG902C2	
82	Transistor (Q525,Q526)	2SC1568	
83	Transistor (Q537-Q540)	2SC4388	
84	Transistor (Q541-Q544)	2SA1673	
85	FET (Q913-Q916)	2SK1946	
86	Diode (D960)	PR3432S	
87	Switch (SW601)	CSG-249	
88	Switch (SW602-SW604)	CSD1021	
89	Thermistor (TH401,402)	CCX1013	
90	Screw	BMS30P050FNI	
91	Ferrite Core	CTF1294	
92-96	.....	

• The RS-A2/EW, RS-A1/UC and RS-A1/EW Parts Lists enumerate the parts which differ from those enumerated in the RS-A2/UC Parts List only. The parts other than those enumerated in the former are identical with those in the latter, to which you are requested to refer, accordingly. The RS-A2/UC Parts List is given on page 47.

Mark	No.	Description	RS-A2/UC	RS-A2/EW	RS-A1/UC	RS-A1/EW
		Part No.	Part No.	Part No.	Part No.	Part No.
1	Screw	BMS30P050FNI	BMZ30P050FZK	BMZ30P050FZK	BMZ30P050FZK	BMZ30P050FZK
5	Cord Assy	CDE3164	.....	CDE3164	.....	.....
6	Cord	CDE3025	.....	CDE3025	.....	.....
7	Cord	CDE3163	.....	CDE3163	.....	.....
8	Fuse (30A)	CEK1117	.....	CEK1117	.....	.....
13	Panel	CNB1708	CNB1708	CNB1706	CNB1706	CNB1706
17	Screw	BMS30P050FCU	PMS30P050FCU	PMS30P050FCU	PMS30P050FCU	PMS30P050FCU
25	Amp Unit	CWH1158	CWH1158	CWH1157	CWH1157	CWH1157
28	Badge	CAH1427	CAH1427	CAH1426	CAH1426	CAH1426
32	Heat Sink	CNR1281	CNR1280	CNR1279	CNR1278	CNR1278
* 63	Fuse	CEK1140 (30A)	CEK1140 (30A)	.....	.....	.....
* 63	Fuse	.....	.....	CEK1138 (20A)	CEK1138 (20A)	CEK1138 (20A)
92	Cord Assy	.....	CDE3032	.....	CDE3032	CDE3032
93	Cord	.....	CDE3025	.....	CDE3025	CDE3025
94	Cord	.....	CDE3027	.....	CDE3027	CDE3027
95	Fuse (30A)	.....	CEK1140	.....	CEK1140	CEK1140
96	Auto Fuse Holder	.....	CKR1006	.....	CKR1006	CKR1006

• When you exchange the thermistor of No. 89, use the screw of No. 36 to install the thermistor to the sub heat sink.

15. PACKING METHOD

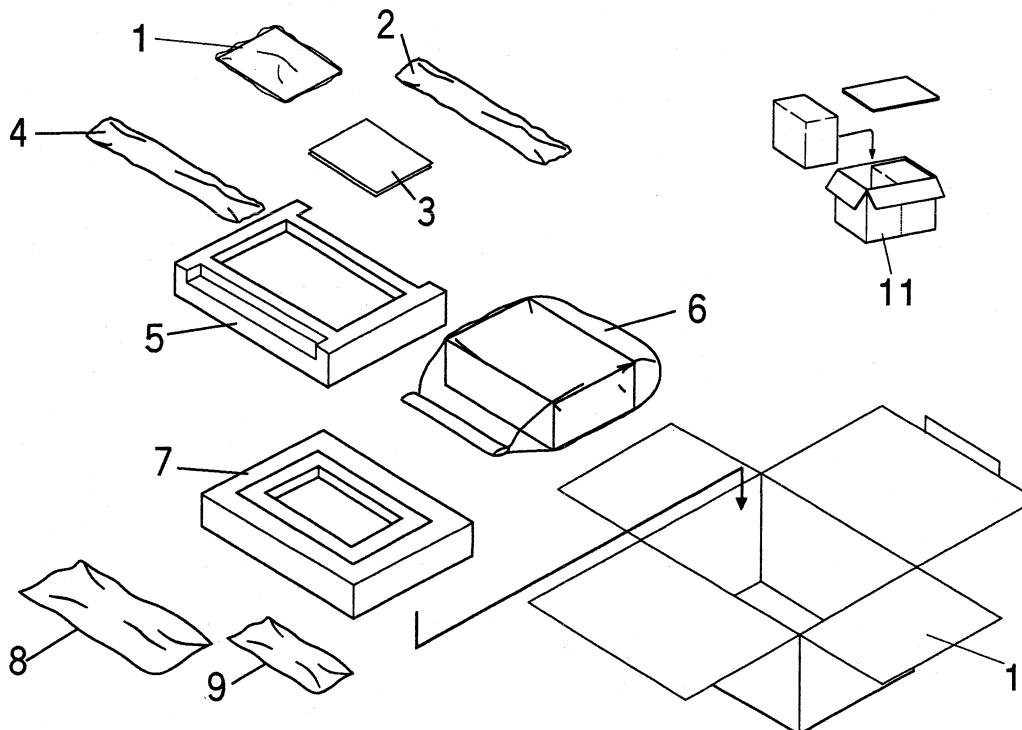


Fig.21

● Parts List

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
*	1	Polyethylene Bag	E36-634	9	Cord Assy (UC)	CDE3164	
1-1	Owner's Manual (UC)	CRD1707			Cord Assy (EW)	CDE3032	
	Owner's Manual (EW)	CRD1662	9-1	Cord (Earth)	CDE3025		
	Owner's Manual (EW)	CRD1663	9-2	Cord (Battery Power) (UC)	CDE3163		
*	1-2	Warranty Card (UC)	CRY1053		Cord (Battery Power) (EW)	CDE3027	
*	1-3	Caution Card (RS-A1/UC)	CRP1128	*	9-3	Polyethylene Bag	CEG-145
*	Caution Card (RS-A1/EW)	CRP1127	10	Carton (RS-A1/UC)	CHG2333		
2	Cover	CEG1146			Carton (RS-A1/EW)	CHG2334	
2-1	Cover	CNS2654			Carton (RS-A2/UC)	CHG2336	
3	Card (EW)	CRY-062			Carton (RS-A2/EW)	CHG2337	
4	Cover	CEG1146	11	Contain Box (RS-A1/UC)	CHL2333		
4-1	Cover	CNS2655			Contain Box (RS-A1/EW)	CHL2333	
5	Protector	CHP1580			Contain Box (RS-A2/UC)	CHL2336	
6	Cover	CEG1145			Contain Box (RS-A2/EW)	CHL2337	
7	Protector	CHP1581					
8	Accessory Assy	CEA1855					
8-1	Screw Assy	CEA1824					
8-1-1	Screw (>4)	HNC50P200FZK					
*	8-1-2	Polyethylene Bag	E36-613				
8-1-3	Screw	ZMD30H040FBK					
8-1-4	Shaft	CLP1100					
*	8-2	Polyethylene Bag	CEG1101				
8-3	Cover	CNS2211					
8-4	Cover	CNS2227					
8-5	Driver	CNV3579					

1-1 Owner's Manual

Part No.	Model	Language
CRD1707	RS-A1,A2/UC	English,French
CRD1662	RS-A1,A2/EW	English,Italian,French, German
CRD1663	RS-A1,A2/EW	Dutch,Spanish,Swedish

16. ELECTRICAL PARTS LIST

NOTE:

● Parts whose parts numbers are omitted are subject to being not supplied.

● The part numbers shown below indicate chip components.

Chip Resistor

RS1/OS000J,RS1/OOS000J

Chip Capacitor (except for CQS.....)

CKS....., CCS....., CSZS.....

====Circuit Symbol & No. Part Name=====	Part No.	====Circuit Symbol & No. Part Name=====	Part No.
•RS-A2/UC,EW			
Unit Number :			
Unit Name : Amp P.C.Board			
MISCELLANEOUS			
IC 401	TA8194Z	Thermistor	CCX1013
IC 604	M51946BL	Switch	HSH-156
IC 901	UPC494C	Semi-fixed 470Ω(B)	VRTB6VS471
Q 351 402 403 415 418 419 420 421 605	2SC2458	Semi-fixed 100kΩ(B)	VRTB6VS104
Q 355 422	2SD1859	Capacitor	CCG-081
Q 401	2SB1238	Fan Motor	CCM-081
Q 404	2SC2458	Ferrite Core	CTF1294
Q 417 902	2SC3113		2SC1568
Q 501 502	2SC2459		2SC4388
Q 503 504	2SA1049		
Q 505 506 509 510 519 520	2SC1845		2SA1673
Q 507 508 511 512 517 518	2SA992		2SK1946
Q 513 514	2SK389		YG902N2
Q 515 516	FET		YG902C2
Q 521 522 531 532	2SJ109		CEK1140
	2SA1145		
Q 523 524 529 530	2SC2705	RESISTORS	
Q 533 534	2SC3298		RD1/4PS473JL
Q 535 536	2SA1306		RD1/4PS224JL
Q 603	2SA1048		RD1/4PS391JL
Q 604	2SC2458		RD1/4PS102JL
Q 901	2SB1243		RD1/4PS173JL
Q 903 924	2SD2037		RD1/4PS181JL
Q 904 905	2SA1048		RD1/4PS221JL
Q 906 907 923	2SC2458		RD1/4PS152JL
Q 909 910	2SD1919		RD1/4PS103JL
Q 911 912	2SB1277		RD1/4PS473JL
Q 925	2SC3113		RD1/2PS331JL
D 302 303	RD24JSB2		RD1/4PS123JL
D 304	RD16JSB3		RD1/4PS104JL
D 351 416 417 419 421 604 904	1SS133		RD1/4PS222JL
D 352 402 914	HZS6LC1		RD1/4PS103JL
D 401 403 420 902	ERA15-02VH		RD1/4PS152JL
D 404	HZS18JB3		RDR1/6PU222J
D 415	HZS9LC1		RDR1/6PU821J
D 422	RD12JSB1		RDR1/6PU821J
D 501 502 503 504 913	HZS7LC2		RDR1/6PU153J
D 505 506	SV04YS		RDR1/6PU225J
D 901	RM4Z		RDR1/6PU562J
D 903	HZS12LA3		RDR1/6PU561J
D 905	1SS133		RDR1/6PU221J
D 915 916	ERA92-02		
L 351	LAU1R5K		RDR1/6PU122J
L 352	LAU1R0M		RDR1/4PM473J
L 901	CTH1111		RDR1/6PU151J
L 903	CTF-113		RDR1/6PU621J
			RDR1/6PU101J

=====Circuit Symbol & No. Part Name=====

R 561	562	563	564	
R 565	566			RDR1/6PU470J
R 567	568	569	570	RDR1/4PM121J
R 575	576	577	578	RDR1/4PM100J
R 583	584			CCN1071
R 585	586	587	588	RN1P4R7JL
R 610	901	911	915	RDR1/6PU104J
R 903	951			RD1/4PS472JL
R 905				RD1/2PS221JL
R 908				RD1/4PS331JL
R 912	925	926		RD1/4PS105JL
R 913				RD1/4PS332JL
R 914				RD1/4PS821JL
R 918	920			RD1/4PS512JL
R 919				RD1/4PS182JL
R 921				RD1/4PS223JL
R 927	928	929	930	RD1/4PS153JL
R 935	936	937	938	RD1/4PS220JL
R 939	950			RS1/2P330JL
R 952				RS1/2P470JL
R 956				RD1/4PS183JL
R 964				
R 965				RD1/4PS472JL
CAPACITORS				RD1/4PS682JL
C 306				RD1/4PS473JL
C 307	308	365	411	CKPYB102K50L
C 351				CKPYB102K50L
C 352	353	354	509	CEAS330M10
C 364	367			CFTXA104J50
C 401	907	910	961	CEAS100M50
C 402				CEAS4R7M35
C 403				CEAS100M16
C 404	539	540	541	CFTXA473J50
C 414				CEAS470M16
C 415				CCH-114
C 501	502	503	504	CEKA470M50
C 505	506	507	508	CEKA100M50
C 513	514	515	516	CFTNA105J50
C 517	518	519	520	CQPA152G2A
C 521	522	523	524	470μF/16V
C 525	526	527	528	CCH-114
C 529	530	531	532	CEKA470M50
C 535	536	537	538	CEKA100M50
C 543	544	545	546	CFTNA103J50
C 547	548			CMA220J2H
C 549	550	908	917	CFTXA103J50
C 553	554			CMA101J2H
C 555	556			CEKA101M35
C 557	558			CMA680J2H
C 604				COPA102G2A
C 903	904	905	909	47μF/16V
C 911	912			CFTXA104J50
C 913	914	976		CFTXA153J50
C 942	943	979	986	CCH1156
C 953	954			CEKA222M35
C 955	956			CEKA221M10
C 964				CFTXA473J50
C 965	966			CFTXA474J50
C 967	968			CFTXA564J50
C 978	981	984	985	330μF/50V
C 980				CCH1157
C 987	988			CEAS470M10
C				CEKA331M6R3
1800μF/35V				

Part No.

=====Circuit Symbol & No. Part Name=====

Part No.

DC/DC Converter Unit
Consists of
•DC/DC Converter (+) P.C.Board
•DC/DC Converter (-) P.C.Board

Unit Number : CWR1041
Unit Name : DC/DC Converter Unit

MISCELLANEOUS

IC 800	850			TL1451ANS
Q 800	825	850	875	2SA1797
Q 801	826	851	876	2SC2812
Q 802	827	852	877	2SA1179
D 800	825	850	875	SC802-06

L 800	801	802		Choke Coil
L 825	827	850	851	Choke Coil
T 825	875			Transformer

CTH1123
CTH1124
CTT1021

RESISTORS

R 800	825	850	875	RS1/10S122J
R 801	851			RS1/10S473J
R 802	827	852	877	RS1/4S681J
R 803	828	853	878	RS1/10S101J
R 804	829	854	879	RN1/10SE303D

R 805				RN1/10SE113D
R 807	808	832	857	RN1/10SE103D
R 809	859			RS1/10S754J
R 810	860			RN1/10SE912D
R 811	861			RN1/10SE153D

R 812	862			RN1/10SE303D
R 813	863			RS1/10S221J
R 814				RN1/10SE332D
R 826	876			RS1/10S473J
R 830	855			RN1/10SE622D

R 833	883			RN1/10SE103D
R 834				RN1/10SE392D
R 856				RS1/10S104J
R 864				RN1/10SE471D
R 880				RN1/10SE432D

R 884				RN1/10SE122D
R 885				RS1/10S104J

CAPACITORS

C 800	802	806	808	825	39μF/25V	CCH1162				
C 827	831	832	833	850	39μF/25V	CCH1162				
C 804	854					CCSQCH101J50				
C 805	809	814	830	834	855	859	864	880	884	CKSQYB102K50
C 807	816	835	836	886						CKSQYB222K50

C 810	860					CKSQYB102K50
C 811	861					CEHAS10M50
C 812	862					CCSQCH221J50
C 813	863					CKSQYB104K25
C 815	865					CKSQYF104Z25

C 829	879					CCSQCH101J50
C 852	856	858	875			CCH1162
C 877	881	882	883			CCH1162

=====Circuit Symbol & No. Part Name=====										Part No.	=====Circuit Symbol & No. Part Name=====										Part No.
DSP•VOL Unit											R 39	652	966	972	973	977	979				RS1/10S472J
Consists of											R 40	43	44	45	46	214	227				RS1/10S472J
•DSP P.C.Board											R 41	42	120								RS1/10S105J
•VOL P.C.Board											R 49	50	73	74	967	974				RS1/10S104J	
											R 51	105	252								RS1/10S222J
Unit Number :											R 53										RS1/10S112J
Unit Name : DSP•VOL Unit											R 54										RS1/10S472J
MISCELLANEOUS											R 55										RS1/10S472J
IC 1 2 111 112											R 57	61	62	71	72	75	76	190	306		RS1/10S103J
IC 3 4 9 10											R 58										RS1/10S123J
IC 5 6											R 69	70	101	970							RS1/10S101J
IC 7 8											R 78	173	186	305	314	315	316	612	613		RS1/10S102J
IC 51											R 104	253									RS1/10S222J
IC 52											R 106	108	111	113	114	115	145	146	151	152	RS1/10S102J
IC 101											R 107										RS1/10S622J
IC 102											R 109	110									RS1/10S121J
IC 103	(HM62256ALFPI-12T)										R 117	693	699								RS1/10S103J
IC 105											R 147	604	653	657	664	680	684	688			RA4C102J
IC 106											R 154	155	159	160	303	304	309	310	601	602	RS1/10S102J
IC 107 108											R 161	165	169	174	178	182	668	672	674		RA4C102J
IC 301											R 191	192	193	194							RS1/10S330J
IC 302											R 201	202									RN1/10S272D
IC 601											R 208	221									RS1/10S331J
IC 602											R 209	222									RS1/10S242J
IC 603											R 210	223									RS1/10S122J
Q 1 2 9 953 958											R 211	224									RS1/10S162J
Q 3 4 5 6 10											R 212	225									RS1/10S751J
Q 7 8 105 107 952 957											R 213	226									RS1/10S221J
Q 51											R 215	228									RS1/10S105J
Q 106 108											R 307										RS1/10S103J
Q 601											R 318	319	694								RS1/10S101J
Q 955											R 603	608	617	619	620	621	622	635	689	711	RS1/10S102J
Q 956											R 605	606									RA4C473J
2SC1621											R 618										RS1/10S471J
2SC2712											R 624	636	637	640	661	696	697	698	709		RS1/10S473J
D 1 2 951 952											R 625										RS1/10S222J
D 3 4 9 10											R 627	690	691	975	976	993					RS1/10S102J
D 5 6 7 8											CAPACITORS										
D 601											C 1	2									CKSQYB102K50
D 602 603 605 606 607 608 609 610 611											C 3	4	41	42							CKSQYB102K50
Inductor											C 7	8	9	10	30	32					CKSQYB104K25
L 51 106 915 918 919 920 921											C 11	12	13	14	10μF/10V						CCH1171
L 52											C 15	16	17	18	19	20	21	22	23	24	CKSQYB104K25
L 100											C 25	26	29	31	37	38	39	40			CKSQYB104K25
L 103 105 301											C 33	34									CKSQYB273K50
Inductor											C 35	36									CCSQSL101J50
LCTA2R2J3225											C 43	44									CKSQYB103K50
LCTA1R0K3225											C 45	46									CKSQYB103K50
X 101	VCO 16.934MHz										C 47	48	49	50							CEV220M6R3
X 301	Ceramic Resonator 12.583MHz										C 51	923	924								CFHSQ103J16
CSS1107											C 52										CCSQCH150J50
CSG-249											C 53	60	109	112	113	115	116	117	151	152	CFHS473J16
CSD1021											C 54	73	122	135	172						CECV220M6R3
RESISTORS											C 56										CFHSQ221J50
R 1 2 17 18 19 20 21 22 52											C 57	301									CFHSQ102J50
R 3 4 15 16 47 48 59 60 64											C 58	59									CFHSQ471J50
R 7 8 9 10											C 71	72									CKSQYB103K50
R 11 12 33 34 102 116											C 75	76	77	78	10μF/10V						CCH1171
R 13 14 29 30 56											C 100	102	105	106	110	111	142				CFHSQ473J16
RS1/10S181J											C 101	107	603								CFHSQ103J16
RS1/10S181J											C 103	108	605	925	926	951	952				CECV100M16
RS1/10S682J											C 104	114									CCSQCH220J50
RS1/10S473J											C 118	130	927								CECV470M6R3
RS1/10S473J																					

=====Circuit Symbol & No. Part Name=====

		Part No.							
C 119	171	CFHSQ221J50							
C 120	121	CECV4R7M25							
C 123	150	CECV101M6R3							
C 125	137	CFHSQ182J50							
C 126	138	CFHSQ471J50							
C 127	139	CFHSP683J16							
C 128	129	CECV220M10							
C 153	154	CFHS473J16							
C 607		CECV010M50							
C 928	929	CFHSQ102J50							
C 930		0.47μF/5.5V CCL1016							
C 932	933	934	935	936	937	938	939	940	CFHSQ471J50

MISCELLANEOUS

Fuse 30A	CEK1140
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- The RS-A1/UC,EW Parts List enumerates the parts which differ from those for the RS-A2/UC,EW only.

The parts other than those enumerated in the RS-A1/UC,EW Parts List are identical with those in the RS-A2/UC,EW Parts List,to which you are requested to refer,accordingly.

The RS-A2/UC,EW Parts List is given on page 50.

Amp P.C.Board

Circuit Symbol & No.	RS-A2/UC,EW	RS-A1/UC,EW
	Part No.	Part No.
T901	CTT1020	CTT1019
R501,502,503,504	RD1/4PS103JL	RD1/4PS472JL
R509,510,511,512	RDR1/6PU821J	RDR1/6PU102J
R517,518,579,580	RDR1/6PU562J	RDR1/6PU392J
R543,544	RDR1/4PM473J	RDR1/4PM183J
R549,550	RDR1/6PU122J	RDR1/6PU162J
R551,552	RDR1/6PU681J	RDR1/6PU621J
R922,923	RD1/4PS104JL	RD1/4PS473JL
R955	RD1/4PS472JL	RD1/4PS103JL
R964	RD1/4PS682JL	RD1/4PS202JL
C501,502,503,504	CEKA470M50	CEKA101M25
C505,506,507,508	CEKA100M50	CEKA470M25
C543,544,545,546	CEKA101M35	CEKA221M25
C942,943,979,986	CEKA222M35	CEKA332M25
C965,966	CFTXA564J50	CFTNA105J50
FU901	CEK1140	.....
FU901	.....	CEK1138

17. CIRCUIT DESCRIPTION

17.1 ELECTRONIC VOLUME

Input signals from the D/A converter are converted from unbalance to balance by IC1 (IC2: Rch). Two kinds of signals of positive and negative phases are input into the electronic volume IC5 (IC6: Rch). IC5 is an electronic volume with two channels and acts to set positive- and negative-phase signals at a desired level. The output of the electronic volume passes through the buffer amplifier IC9 (IC10: Rch) before being input into the power amplifier section.

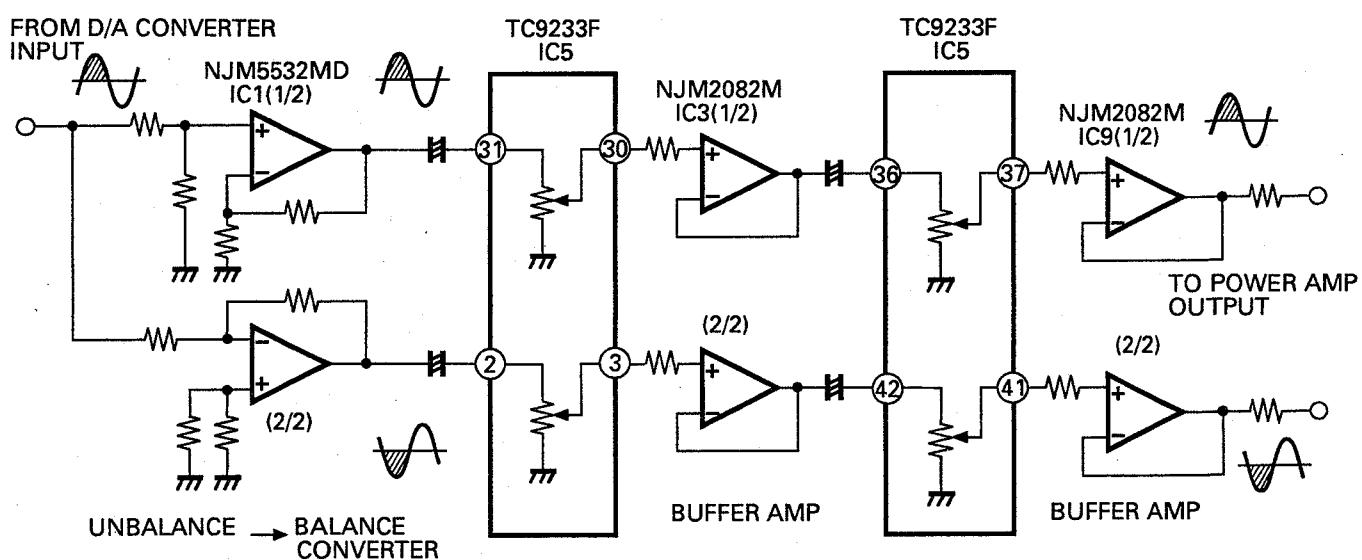


Fig.22

17.2 SUPPLY VOLTAGE CONTROL OF POWER OUTPUT STAGE

Because RS-A1 is an amplifier of pure Class A, there are large amounts of idling currents in the output stage of the power amplifier. Thus, the current consumption of the primary circuit of the DC/DC converter, namely, the current consumption of the battery is large. In order to reduce the burden of the battery, the RS-A1 contains a circuit that lessens the supply voltage of the power amplifier output stage when the volume is less, resulting in the decrease in the current consumption of the battery. Operation of this circuit is described below. Control is performed, depending on the step number of the volume. When the volume is tuned to step 0 to 14, the voltage is set low; and to 15 and above, the voltage is set high. (When EQ or BASS-TRE control is performed in the case where NAC is turned OFF and the network is in the through condition, the threshold step number slightly varies depending on the degree of control.)

When the volume is tuned to step 0 to 14, the output of pin 29 of IC601 is set Hi and Q925 is turned ON. At this time, the reference voltage that will be input into pin 15 (error amp input) of the PWM control IC901 is decreased and the output voltage of the DC/DC converter is lowered ($\pm 7.5V$; RS-A1). When the volume is tuned to step 15 and above, the output of IC601 is set Low and Q925 is turned OFF. The reference voltage that will be input into IC901 is increased and the output voltage of the DC/DC converter is increased ($\pm 14V$; RS-A1).

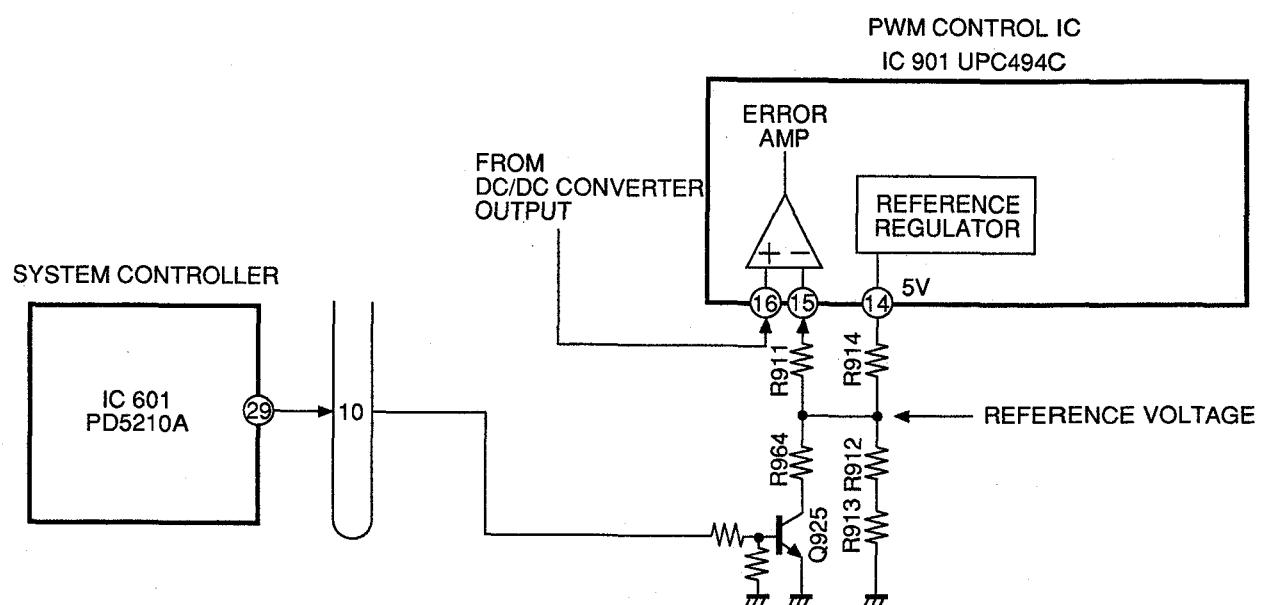


Fig.23

18. OPERATIONS AND CONNECTION

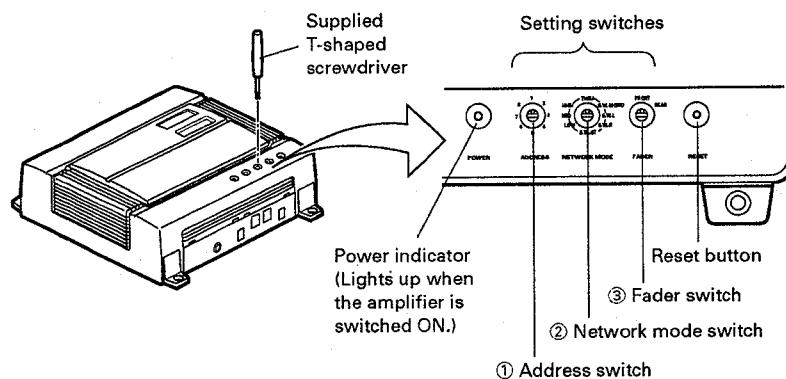
Setting of this unit

This unit has three setting switches: address, network mode and fader. Set these switches according to the purpose of the speakers to be connected to the amplifier. Incorrect setting will result in improper operation of the ODR System.

Switching the setting

1. Change the setting of the switches using the T-shaped screwdriver supplied with the amplifier.

> Keep the supplied T-shaped screwdriver in a safe place.

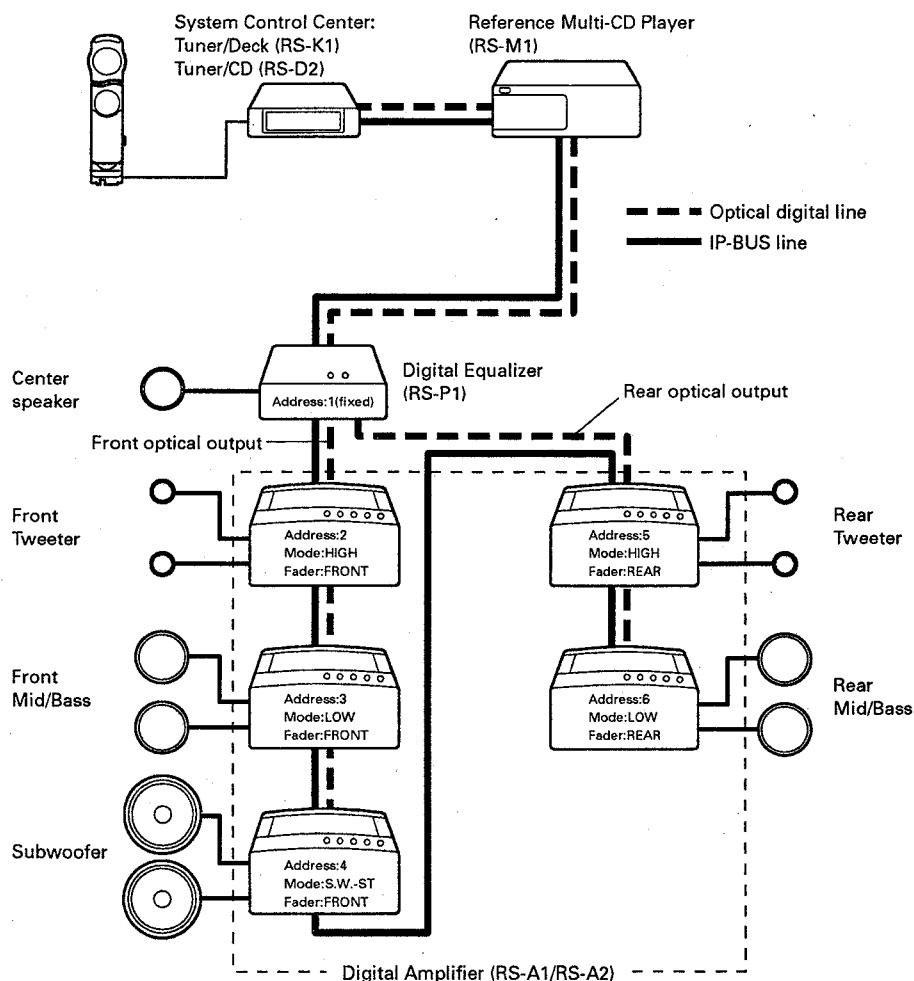


2. Press the Reset button.

Always press the Reset button after changing a setting switch (see "Reset Button" on page 60). Otherwise the new setting will not be registered.

Setting Example

- > Read the manual of the ODR System Control Center for specific setting examples.
- > To ensure better sound quality, PIONEER recommends to connect the speakers to the Digital Amplifier in the sequence of high-range, mid-range, low-range, and subwoofer modes. Also, connect the subwoofer to the front OUT. (Although the subwoofer is connected to the front OUT, it may be installed to either front or rear.)
- > The current consumption of the RS-A1 is very high. To avoid overload to the battery, do not connect more than two RS-A1 amplifiers to an ODR System. Also, PIONEER recommends to set the RS-A1 to the front tweeter and front mid-range.



① Address setting

Multiple audio units* such as the RS-A1/RS-A2 Amplifier and Digital Equalizers can be connected to the ODR System. Therefore, each audio unit must be assigned an address as identification number (1 to 8).

Set the address according to the following rules:

- Set a unique address to each audio unit.
- The first audio unit must be assigned to Address 1.
- If the Digital Equalizer RS-P1 is included among the audio units, it must be assigned as Address 1. Therefore, assign Addresses 2 to 8 to other audio units.
- > The RS-P1 is fixed to Address 1, and this setting cannot be changed.
- If the Digital Equalizers RS-P50 is used instead of the RS-P1, assign Address 1 to one of the RS-P50 equalizers.

② Network mode setting

Set the mode for the network according to the purpose of the speakers to be connected.

THRU mode (Frequency: 20 — 20,000Hz)

Set to this mode when the speaker to be connected will be used in full-range.

- > In this mode, the functions of the network are disabled.
- > This mode is invalid if the RS-P1 or RS-P50 Digital Equalizer is used in the ODR System.
- > When using the ODR System in this mode, other digital amplifiers (RS-A1/RS-A2) must also be set to THRU mode.

S.W. - MONO (subwoofer monaural) mode (Frequency: 20 — 250Hz)

Set to this mode when the speaker to be connected will be used as subwoofer to output monaural sound.

S.W. - L (subwoofer L channel) mode (Frequency: 20 — 250Hz)

Set to this mode when the speaker to be connected will be used as subwoofer to output L (left) channel sound.

S.W. - R (subwoofer R channel) mode (Frequency: 20 — 250Hz)

Set to this mode when the speaker to be connected will be used as subwoofer to output R (right) channel sound.

S.W. - ST (subwoofer stereo) mode (Frequency: 20 — 250Hz)

Set to this mode when the speakers to be connected will be used as subwoofers to output stereo sound.

*Audio units

By definition, audio units are Digital Amplifiers, Digital Equalizer and other audio equipment for the ODR System including the following:
 — Dual 1/3 Octave Digital Equalizer [RS-P1]
 — Universal Digital Preamp/Equalizer [RS-P50]
 — Digital "Pure Class A" Integrated Amplifier [RS-A1]
 — Digital "Class A" Integrated Amplifier [RS-A2]

LOW (low-range) mode (Frequency: 25 — 10,000Hz)

Set to this mode when the speaker to be connected will be used in low-range. The speaker can be used in full-range by adjusting the network frequency. Read the manual of the ODR System Control Center for more detail.

MID (mid-range) mode (Frequency: 200 — 20,000Hz)

Set to this mode when the speaker to be connected will be used in mid-range.

HIGH (high-range) mode (Frequency: 1,600 — 20,000Hz)

Set to this mode when the speaker to be connected will be used in high-range.

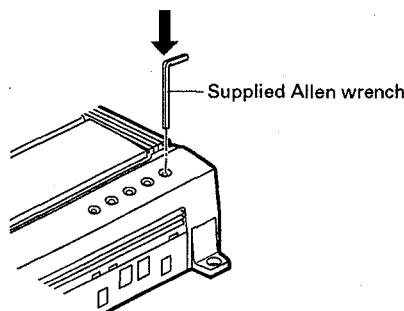
③ Fader setting

Select to connect either FRONT or REAR speakers. However, the setting of the fader will be invalid when the network mode is set to subwoofer. In such a case, no fader setting is required.

Reset Button

After specifying a new setting with a setting switch, press the Reset button with the supplied Allen wrench. Also, press the Reset button after an error has occurred to the built-in microprocessor.

- > Connect the RS-A1/RS-A2 amplifier to the power supply before pressing the Reset button.
Otherwise, the amplifier may not be reset.
- > Keep the supplied Allen wrench in a safe place.

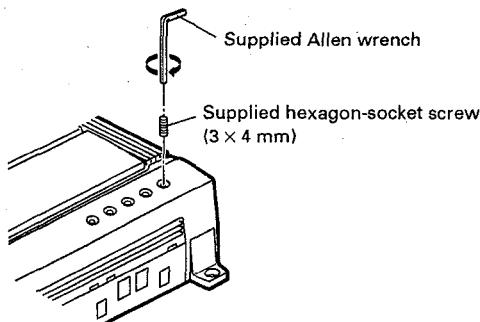


For the audio unit assigned to Address 1:

- Do not press the Reset button imprudently when an error has occurred to the audio unit assigned to Address 1. Keep in mind that pressing the Reset button for the audio unit of Address 1 will reset all other audio units such as the network, equalizer, etc. In such a case, contact your dealer before pressing the Reset button.
- When pressing the Reset button for the audio unit assigned to Address 1, press also the Reset buttons for all the other audio units.

Protection for the Reset button

To prevent accidental pressing after setting and adjusting all audio units, install the supplied hexagon-socket screw onto the Reset button.



To prevent malfunction:

- Install the hexagon-socket screw so that the screw head becomes flush with the rim of the screw hole.

Connecting the Units

CAUTION

To prevent short-circuit

- Secure the wiring with cable clamps or adhesive tape. To protect the wiring, wrap adhesive tape around them where they lie against metal parts.
- Do not route wires where they will get hot, for example where the heater will blow over them. If the insulation heats up, it may become damaged, resulting in a short-circuit through the vehicle body.
- Make sure that wires will not foul moving parts of the vehicle, such as the gearshift, handbrake or seat sliding mechanism.

CAUTION

To avoid accidents

- Do not shorten any leads. Otherwise the protection circuit may fail to work when it should.
- Never feed power to other equipment by cutting the insulation of the power supply lead to tap from the lead. The current capacity of the lead will be exceeded, causing overheating.
- Be sure to use the special red battery lead supplied with the amplifier and connect directly to the battery. Use the supplied black ground lead and connect to the vehicle body. (The supplied special red battery and ground leads are designed so that the amplifier can be connected safely.)

To prevent overload to the battery

- The power consumption of the RS-A1 is very high. To avoid overload to the battery, do not connect more than two RS-A1 amplifiers to an ODR System.

**To prevent damage**

- Do not use the Digital Fiber Optic Cable CD-D60 and CD-D15 when using more than four optical cables in the entire ODR System. Otherwise no sound may be output.
- When disconnecting a connector, pull the connector itself. Do not pull the lead itself, as it may come away from the connector.
- Speakers to be connected to the RS-A1/RS-A2 amplifier should conform with the standards listed below. Otherwise damage will be caused to the speaker.

• Do not ground the speaker lead directly to the vehicle body. Do not connect multiple negative (-) speaker leads to a single terminal. Doing so may result in no sound from the speakers. Increasing the sound volume in this state may blow the fuse of the amplifier.

Model	Speaker		Standards	
	Channel	Type	Power	Impedance
RS-A1	2-channel	Subwoofer	Nominal input: Min. 15 W	1~8Ω
		Other than subwoofer	Max. input: Min. 30 W	
	1-channel	Subwoofer	Nominal input: Min. 60 W	
		Other than subwoofer	Max. input: Min. 60 W	
RS-A2	2-channel	Subwoofer	Nominal input: Min. 50 W	2~8Ω
		Other than subwoofer	Max. input: Min. 100 W	
	1-channel	Subwoofer	Nominal input: Min. 160 W	
		Other than subwoofer	Max. input: Min. 200 W	

**To ensure grounding**

- > To ensure connection of the ground lead, remove paint with sandpaper if it must be connected to a painted portion.

To prevent noise

- > Install and route the special red battery lead supplied with the amplifier as faraway as possible from the IP-BUS and speaker leads. Install and route the battery lead, ground lead, IP-BUS and speaker leads, and the RS-A1/RS-A2 amplifier as faraway as possible from the antenna, antenna cable and tuner.

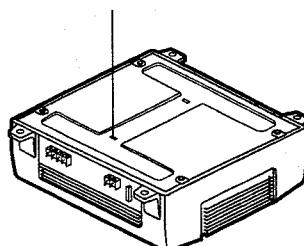
Connection of the IP-BUS and optical digital line

- > To prevent incorrect connection, the input side of the IP-BUS and optical digital line connector is colored in blue, and the output side in black. Connect the connectors of the same colors correctly. (The portions to be connected of the IP-BUS connector are colored.)

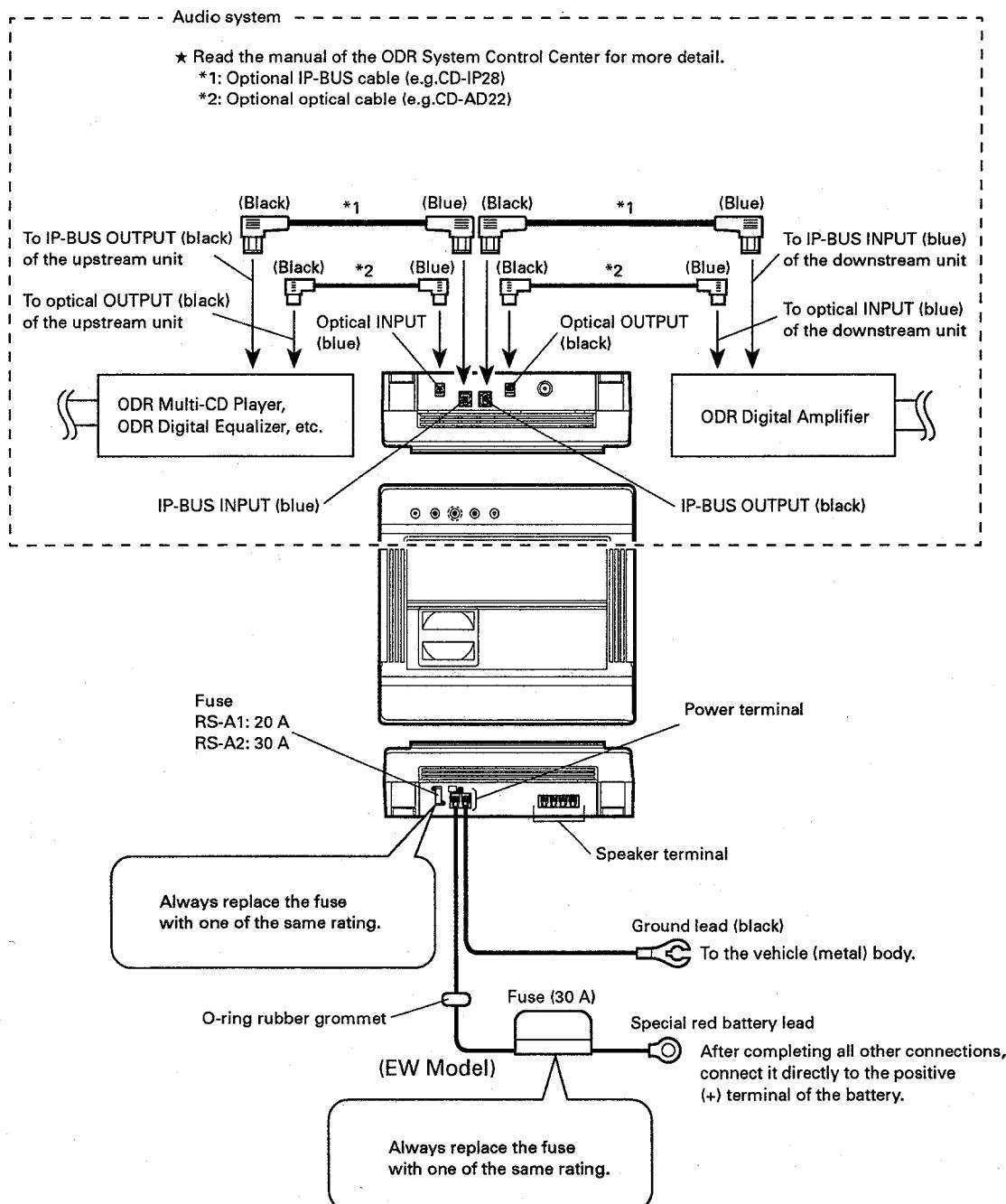
When AM broadcasts produce beat noise

- > Change the BFC switch which is located at the bottom of the amplifier between L and H.

BFC switch



Connection Diagram



19. SPECIFICATIONS

GENERAL

Power source	DC 14.4 V (10.8 — 15.6 V allowable)
Grounding system	Negative type
Current consumption (RS-A1)	7.5 A (4 Ω, Continuous power)
Current consumption (RS-A1)	4.0 A (4 Ω, No signal)
Current consumption (RS-A2)	13.0 A (4 Ω Continuous power)
Current consumption (RS-A2)	1.5 A (4 Ω, No signal)
Average current consumption* (RS-A1)	7.5 A (4 Ω, 2 channels/1 channel)
Average current consumption* (RS-A2)	6.0 A (4 Ω, 2 channels) 12.0 A (4 Ω, 1 channel)
Fuse (RS-A1)	Main unit: 20 A Special battery lead: 30 A
(RS-A2)	Main unit: 30 A Special battery lead: 30 A
Dimensions	280 (W) × 86.5 (H) × 260 (D) mm [11 (W) × 3 (H) × 10-1/4 (D) in.]
Weight	5.4 kg (11.9 lbs.)

POWER AMPLIFIER (RS-A1)

Maximum power output	30 W × 2/60 W × 1
Continuous power output	15 W × 2 (20 Hz — 20 kHz, 0.01%, 4 Ω)
EIA power	30 W × 2 (20 Hz — 20 kHz, 0.04%, 2 Ω)
DIN power	50 W × 2 (20 Hz — 20 kHz, 0.08%, 1 Ω)
(DIN45500, +B=14.4 V)	60 W × 1 (20 Hz — 20 kHz, 0.04%, 4 Ω) 100 W × 1 (20 Hz — 20 kHz, 0.08%, 2 Ω)
Frequency response	5 Hz — 100 kHz (+0, -1 dB)
Distortion	0.002% (at 10 W, 1 kHz)
Signal-to-noise ratio	102 dB (IHF-A network) (UC) 102 dB (IEC-A network) (EW)
Load impedance	4 Ω (1 — 8 Ω allowable)
Slew rate .....	..... 27 V/μsec.
Separation	80 dB (100 Hz — 10 kHz)
Damping factor	600
Headroom margin	0 dB

POWER AMPLIFIER (RS-A2)

Maximum power output	100 W × 2/200 W × 1
Continuous power output	50 W × 2 (20 Hz — 20 kHz, 0.01%, 4 Ω)
EIA power	80 W × 2 (20 Hz — 20 kHz, 0.04%, 2 Ω)
DIN power	160 W × 1 (20 Hz — 20 kHz, 0.04%, 4 Ω)
(DIN45500, +B=14.4 V)	..... 5 Hz — 100 kHz (+0, -1 dB)
Frequency response .....	..... 0.002% (at 10 W, 1 kHz)
Distortion	106 dB (IHF-A network) (UC) 106 dB (IEC-A network) (EW)
Signal-to-noise ratio	4 Ω (2 — 8 Ω allowable)
Load impedance .....	..... 30 V/μsec.
Slew rate	75 dB (100 Hz — 10 kHz)
Separation	600
Damping factor	0 dB
Headroom margin	0 dB

DSP/PREAMP

Tone controls (parametric)

Bass frequency	63 Hz, 100 Hz, 160 Hz, 250 Hz
Treble frequency	4 kHz, 6.3 kHz, 10 kHz, 16 kHz
Level	±12 dB

3-band parametric equalizer

Frequency	20 Hz — 20 kHz, 1/3 oct.
Level	±12 dB
Q factor	1.8/2.6/4.3

Network (selectable)

SUBWOOFER	HPF frequency: 20 Hz — 100 Hz, 1/3 oct. LPF frequency: 25 Hz — 250 Hz, 1/3 oct.
LOW	HPF frequency: 25 Hz — 250 Hz, 1/3 oct. LPF frequency: 250 Hz — 10 kHz, 1/3 oct.
Level	Level: 0 dB — -24 dB (0.5 dB)

MID	HPF frequency: 200 Hz — 10 kHz, 1/3 oct. LPF frequency: 2 kHz — 20 kHz, 1/3 oct.
Level	Level: 0 dB — -24 dB (0.5 dB)
HIGH	HPF frequency: 1.6 kHz — 20 kHz, 1/3 oct. LPF frequency: 8 kHz — 20 kHz, 1/3 oct.

Level	Level: 0 dB — -24 dB (0.5 dB)
Slope	PASS, -6, -12, -18, -24, -30, -36 dB/oct. (HPF of MID and HIGH doesn't have PASS mode)
Phase	NORMAL/REVERSE

Time alignment	0 — 10 msec.
Position adjustment	Time: 0 — 10 msec. Level: 0 — -30 dB

Sampling frequency	44.1 kHz
Digital input	Optical input
Digital output	Optical output

> The specifications and design are subject to change without prior notice.

Products purchased may differ from illustrations of this manual.

*Average current consumption:

The average current consumption is an average, which is close to the maximum current consumption of this unit when music signals are input. Use this average to calculate total current consumption when using multiple amplifiers.